

Conservation-Substitution-Reclamation

JUNE 20, 1942

JUN 23 1942

# Railway Age

## CONSERVE CRITICAL MATERIALS AMERICA'S VICTORY WATCHWORD

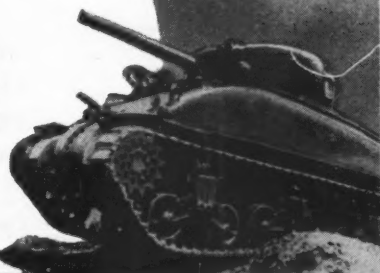
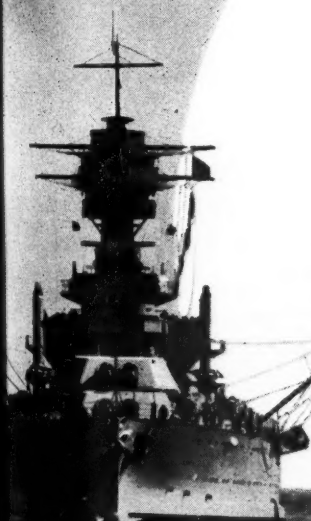


This is a war of super-production. It demands that railway equipment as well as all production facilities be used to the maximum of their capabilities and economy of operation. The flow of materials to war industries must not be impeded or interrupted, — and here the railroads are doing a grand job.

Economy in the use of the nation's resources — making every pound of essential materials go as far as possible — is the conservation program vital to VICTORY.

Railroads operating General Motors Diesel Road Locomotives are increasing the carrying capacity of existing track facilities without expensive replacements with heavier rail or rebuilding of bridge structures . . . For each Diesel operated, as many as five heavy steam locomotives are being released for other important services . . . And in the construction of GM Diesels, one ton of materials does the work of more than two tons of materials in a steam locomotive.

**SERVING THE RAILROADS — SERVES AMERICA**



**GENERAL MOTORS**  
LOCOMOTIVES

### ELECTRO-MOTIVE DIVISION

GENERAL MOTORS CORPORATION

LA GRANGE, ILLINOIS, U.S.A.



## METAL PARTS LAST LONGER

### *When Flame-Hardened by the Oxweld Method*

• A hard surface case which makes wearing parts last longer can be obtained by means of oxy-acetylene flame-hardening. Included among the many locomotive and car parts which are being flame-hardened successfully are: engine truck rockers, rocker seats, chafing castings, crosshead guides, spring saddles, spring saddle seats, engine truck journal boxes, sheave wheels, wearing plates, and—as illustrated above—equalizers. This process can also be used to extend the useful life of such shop equipment as cast iron forming and pressing dies; and

work equipment parts, such as gears, crane wheels, and caterpillar treads. Through its instructors, Oxweld places at the disposal of American railroads the experience and data required for successful flame-hardening applications.

THE OXWELD RAILROAD SERVICE COMPANY  
Unit of Union Carbide and Carbon Corporation



Carbide and Carbon Building Chicago and New York



SINCE 1912—THE COMPLETE OXY-ACETYLENE SERVICE FOR AMERICAN RAILROADS

The word "Oxweld" is a registered trade-mark of a Unit of Union Carbide and Carbon Corporation.

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price \$6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 112, No. 25.



# Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

Published every Saturday by the  
Simmons-Boardman Publishing  
Corporation, 1309 Noble Street,  
Philadelphia, Pa., with editorial  
and executive offices: 30 Church  
Street, New York, N. Y., and 105  
West Adams Street, Chicago, Ill.

SAMUEL O. DUNN, *Chairman of Board*  
HENRY LEE, *President*  
ROY V. WRIGHT, *Vice-Pres. and Sec.*  
FREDERICK H. THOMPSON, *Vice-Pres.*  
ELMER T. HOWSON, *Vice-Pres.*  
F. C. KOCH, *Vice-Pres.*  
ROBERT E. THAYER, *Vice-Pres.*  
H. A. MORRISON, *Vice-Pres.*  
JOHN T. DEMOTT, *Treas.*

CLEVELAND  
Terminal Tower

WASHINGTON  
1081 National Press Building

SEATTLE  
1038 Henry Building

SAN FRANCISCO  
550 Montgomery Street

LOS ANGELES  
530 West 6th Street

## Editorial Staff

SAMUEL O. DUNN, *Editor*  
ROY V. WRIGHT, *Managing Editor*  
ELMER T. HOWSON, *Western Editor*  
JAMES G. LYNE, *Assistant to Editor*

C. B. PECK  
ALFRED G. OEHLER  
E. L. WOODWARD  
J. H. DUNN  
D. A. STEEL  
R. A. DOSTER  
H. C. WILCOX  
NEAL D. HOWARD  
CHARLES LAYNG  
GEORGE E. BOYD  
WALTER J. TAFT  
M. H. DICK  
JOHN H. KING  
JOHN S. VREELAND  
ARTHUR J. MCGINNIS

The Railway Age is a member of  
the Associated Business Papers (A.  
B. P.) and of the Audit Bureau of  
Circulations (A. B. C.)

Subscriptions, including 52 regular  
weekly issues, and special daily edi-  
tions published from time to time  
in New York, or in places other  
than New York, payable in advance  
and postage free. United States,  
U. S. possessions and Canada: 1  
year, \$6.00; 2 years, \$10.00; foreign  
countries, not including daily edi-  
tions: 1 year, \$8.00; 2 years, \$14.00.

Single copies, 25 cents each.

H. E. McCandless, *Circulation  
Manager*, 30 Church St., New York,  
N. Y.

Vol. 112

June 20, 1942

No. 25

## In This Issue

### C. T. C. Solves Track Capacity

Problem on Seaboard . . . . . Page 1181

An article describing the centralized traffic control system installed by the Seaboard Air Line, enabling it to efficiently handle wartime traffic of 50 trains daily on 64 miles of single track.

### Old Station on the Omaha

Appears in Modern Dress . . . . . 1186

The extent to which an outmoded passenger station can be modernized to make it as up-to-date as the streamliners it serves, is demonstrated by the C. St. P., M. & O.'s re-conditioned 50-year old station at Eau Claire, Wis., as described in this illustrated article.

### Conservation—Substitution—Reclamation . . . . . 1192

The magnitude of the war task facing the railroads today and the necessity for conserving materials and manpower to insure essential production, were some of the subjects discussed at the Railroad Session of the American Society of Mechanical Engineers in Cleveland last week. This article covers the proceedings of the meeting and includes some of the principal addresses delivered.

## EDITORIALS

Efficiency for Victory . . . . .	1179
All Records for Efficiency Being Broken . . . . .	1180
Fewer and Longer Passing Tracks . . . . .	1180

## GENERAL ARTICLES

C. T. C. Solves Track Capacity Problem on Seaboard . . . . .	1181
Study Board Issues "Public Aid" Exhibits . . . . .	1184
Old Station on the Omaha Appears in Modern Dress . . . . .	1186
Results Suggest That Railroad Men Know How to Railroad, by M. W. Clement . . . . .	1188
The Wheat Question Is Still Perplexing . . . . .	1191

## A. S. M. E. RAILROAD SESSIONS

The War, and After—A Challenge to Railroad Men, by Joseph B. Eastman . . . . .	1192
Conserve Materials By Using Less, by Col. James L. Walsh . . . . .	1195
Protecting Material Supplies by Conservation, by A. G. Hoppe . . . . .	1197
Substitution—A Constantly Changing Picture, by C. B. Bryant . . . . .	1200
Reclamation—Now a Patriotic Duty, by G. A. Goerner . . . . .	1204
First, Materials—Then Production—Now, Materials, by Andrew Stevenson . . . . .	1207

## THE RAILROADS IN WAR . . . . . 1211

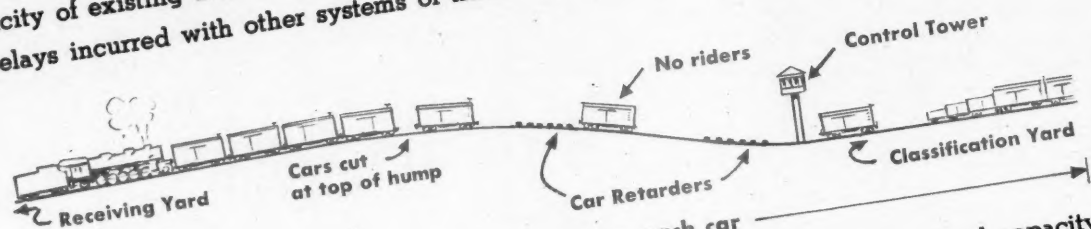
## GENERAL NEWS . . . . . 1216

The Railway Age is indexed by the Industrial Arts Index and also by the  
Engineering Index Service

PRINTED IN U. S. A.

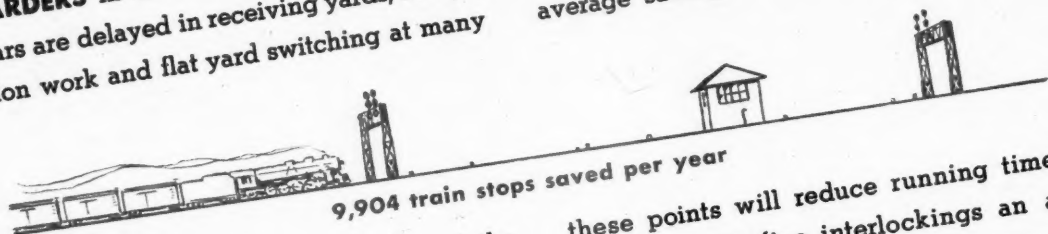
**CENTRALIZED TRAFFIC CONTROL** greatly increases the capacity of existing tracks. In addition, many of the delays incurred with other systems of train

operation are eliminated. A study of ten C.T.C. installations shows an average time saving of 28.1 per cent or 1.2 minutes per freight train mile.



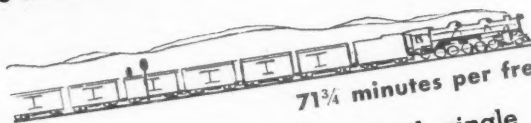
**CAR RETARDERS** in classification yards minimize the time cars are delayed in receiving yards, reduce classification work and flat yard switching at many

other places, and increase yard capacity. In one installation some of these factors contributed to an average saving of 54 minutes per car classified.



**MODERN INTERLOCKINGS** safely speed the routing of trains at terminals, junctions, and cross-overs. The elimination of unnecessary train stops at

these points will reduce running time between terminals. At five interlockings an average of 9,904 train stops a year per location were avoided.



**AUTOMATIC BLOCK SIGNALS** for both single and double direction running increase efficiency and by reducing the headway between following trains accomplish a marked increase in track

capacity. A study of 12 installations shows an average saving of 5805.75 freight train hours per installation per year, and this represents a time saving of 71 3/4 minutes per trip for each freight train.

## How to get more service from existing cars, locomotives and tracks

Signaling has helped the railroads to attain a high degree of efficiency in the utilization of their equipment. More extensive use of signaling can assist them still further in their efforts to accomplish maximum use of what they have.

**UNION SWITCH & SIGNAL COMPANY**  
SWISSVALE, PA.

NEW YORK

CHICAGO

ST. LOUIS

SAN FRANCISCO



# The Week at a Glance

**NOT A ONE-MAN JOB:** A few men with a handful of system-wide ideas don't get an organization as big as a railroad to operating efficiently. Instead, it takes thousands of men doing hundreds of thousands of jobs—each one just a little bit better than he ever did the same job before. For instance, take accident prevention (which is one of the efficiency-for-victory goals discussed in the first editorial herein). The general manager or the supervisor of safety, acting alone, can't do much to make the record better. Every supervisor—and almost every employee even—has to *think* and *act* safety pretty much all of the time, if anything like the safe operation which the railroads are capable of is to be attained.

**FROM WATER BOY TO PRES.:** To get rid of lost motion and produce the best performance in other aspects and departments of railroading, the same kind of everybody-cooperating is needed that brings about safe operation. This kind of top efficiency is what Uncle Sam has got a right to expect of every railroad and every railroad man—because Uncle Sam never before had to depend so much as he does now on getting the best quality and quantity of railroad service that railroad men can produce. This isn't the "other fellow's" responsibility. The contribution of the section hand, in his own bailiwick, is needed just as much as that of the superintendent or chief executive in theirs.

**U. P. WAR PROGRAM:** At least 17 steps have been taken by the Union Pacific to gear itself to the national effort to eliminate the Axis—many of them undertaken or planned long before Pearl Harbor, as is reported in the Railroads-in-War news pages herein. Nine hours a day in shops, rigid conservation of materials, curtailment of poorly-patronized branch line services, loaning of U. P. technicians for consultation to war industries and the government, an advertising program geared to winning the war—these are a few facets of the "all-out" U. P. program.

**ARMY LCL EFFICIENCY:** The Army has established a car-consolidating station in Chicago, where it will convert Army westbound l. c. l. shipments into carloads—saving money, time and freight cars. A similar station may later be located at New York and/or Philadelphia.

**ALL RECORDS BROKEN:** Ton-miles in March were the greatest in history, up till then. The ratio of bad order to total cars and locomotives was the lowest ever recorded. Average daily mileage per locomotive achieved an all-time high. Load per car, tons per train, daily ton-miles per car—all were at a new high level in the first quarter of 1942. These performance statistics are examined in an editorial elsewhere herein—which discloses that practically all averages *except* carloadings are making a more favorable showing than they ever did. The carloadings totals are deceptive, for reasons which the editorial

mentions—chiefest among which is the remarkable high tonnage per l. c. l. car. The result of this latter program has been to add greatly to the *surplus* of open-top car equipment, but the scarcity of open-top cars has not been relieved.

**FEWER SIDINGS BUT FASTER:** Time, not distance, is the controlling factor in the scientific location of passing sidings where they will contribute the most to smooth operation. One railroad, with passing tracks five to six miles apart, determined that 12 minutes was the spacing best adapted to its conditions. With trains averaging 50 m. p. h., it was obvious that it had more sidings than it needed—so it eliminated many, using some of the steel to lengthen the passing tracks retained. With appropriate signal modifications, as an editorial herein records, the alteration brought considerable savings in road time of freight trains.

**TRAINLOAD COAL RATES:** The proposal of the Illinois Central and the Chicago & Illinois Midland to establish a \$1.30-per-ton rate (2,500 tons minimum) from mines in the Springfield, Ill., area to Chicago electric power stations looks okay to I. C. C. Examiner Trezise. The standard carload minimum is \$1.75 per ton.

**85% AHEAD OF '29:** The prodigious transportation job being done by the Southern Pacific for the country's military strength (not neglecting civilian needs) may be gaged by contrasting its present ton-mileage with that of '29. The increase—so President Mercier reveals (as reported in the Railroads-in-War news pages herein)—is 85 per cent, with a continued rise in prospect. The co-operative attitude of the armed services and shippers has been a big help in the transportation history the S. P. Co. is putting on the records.

**SUPER-ODT IN CANADA:** The Canadian government's "transportation controller," who heretofore has had priority power only to differentiate between government shipments, has now been given far more authority than the ODT yet exercises south of the border. The Canadian counterpart of Mr. Eastman may issue priorities governing all classes of traffic. He may command the expansion, contraction or elimination of service wherever he is so minded. He may alter rates as he sees fit.

**WHERE PUT THE WHEAT?:** Our transportation editor, writing from the wheat belt, has an account elsewhere in this issue on the glutted wheat situation. They are going to have to store it in automobile showrooms and any other shelter they can find. All that moves will have to go by permit—the issuance of which the railroads would prefer to be spared; and so, it appears, would other organizations, including some government agencies which do not ordinarily shy away from enlargement of their functions.

**KNOW HOW TO IMPROVISE:** The railroads got good training at improvising in the '30's. Then they were substituting for money—now they are substituting for scores of materials. Same job—only the emphasis has changed. So Test Engineer Bryant, of the Southern, introduces his A. S. M. E. report herein on many successful *ersatz* practices by the railroads—a paper suggestive to the technician and educational to those (such as your reporter) who are unlettered in this vital lore. Just one instance: copper; by cutting down its use in journal "brasses" the carriers not only don't have to call for new metal, but can release a lot they already have.

**CONSERVATION TOO:** Railroads are well schooled in saving labor—and wasting material to do it—but unless they save material now they won't have any with which to economize on labor. So the Milwaukee's A. G. Hoppe advises in his paper in these pages, in relating numerous practical expedients for stretching out the supply of scarce materials. One recommendation is to use forgings more and heavy machining (which cuts away so much metal) less. Substitution is only a partial answer to the material problem—because a popular *ersatz* commodity also quickly gets scarce. Intensive conservation thus is unavoidable, even when it may be a costly alternative.

**AND RECLAMATION:** To reclaim doesn't necessarily mean restoring a waste product to its original function. Making an article useful again, perhaps for some entirely different purpose, also constitutes reclamation. The Burlington's general storekeeper, G. A. Goerner, in his instructive A. S. M. E. paper reported herein, analyses railroad reclamation opportunities, suggesting that the prolonged depression gave the railroads experience in this area which they are now turning to effective account for other reasons.

**CAR ALLOCATIONS:** How approximately 13,500 of the 18,000 freight cars authorized for construction by the WPB have been assigned to individual carriers is tabulated in the Equipment & Supplies columns in the news pages herein.

**U. S. HELP TO RR RIVALS:** Exhaustive and costly experiments are being made by the government for the perfection of aircraft and aviation motors, and commercial air lines after the war will profit from the lessons learned thereby. Similar large-scale experimentation in railroad technology might be equally fruitful, but it is not being carried on—at least not so comprehensively. Such was the observation of Joseph B. Eastman in his thoughtful A. S. M. E. address, reported herein. The O. D. T. Director is concerned about future supplies of railroad repair parts and, as to post-war competition, he reminds the carriers of the adage: "If you can't lick them, join them."

# Rubber-Sheathed Cords and Cables



**WHEN YOU . . .** Wipe them regularly so they are free from oil, grease and chemicals. Such agents in railroad yards attack rubber and shorten its life.



**WHEN YOU . . .** Keep them out of light and sunshine as much as possible in use, and store them in a dark place. Light tends to harden rubber . . . thus hasten cracks.



**WHEN YOU . . .** Keep them away from steam lines, locomotive boilers and other hot objects as much as possible in use, and store them in a cool place. High temperatures shorten the life of rubber.

Even you who are using Okocord (water, acid and alkali-proof) or Okoprene (oil and sun-proof) will get still longer service from these unusually durable cords by taking these simple precautions. Insulated wires and cables and all materials of which they are made are vital to war. Call on Okonite Engineers for help in installing, maintaining and operating them.

**THE OKONITE COMPANY**  
Passaic, New Jersey  
Offices in Principal Cities



**OKONITE TAPES  
& MANSON TAPES**  
make perfect splices  
and terminals

**OKONITE**  
Insulated Wires & Cables



# RAILWAY AGE

---

## *Efficiency for Victory*

It would have been fortunate if all of our people could have heard Col. James L. Walsh's vivid description of the magnitude of our war task at the Railroad Session of the American Society of Mechanical Engineers in Cleveland last week. Next year's war production, he said, will be equivalent to building 300 Panama canals. The necessity for conserving materials and manpower to insure essential production of war equipment and materials is most acute; and every man, woman and child can and should make a contribution to such conservation.

Carelessness, for example, is responsible for innumerable accidents of all kinds—in the home, on the highways, on the farms, in industries; and the effect in impairing manpower is found, when critically analyzed, to be more disastrous to production and transportation than any but a few realize. Reduction of accidents, and of heedless waste of materials and transportation, will make savings contributing greatly to the standards of production and transportation required to win and shorten the war.

A shift in the program brought Colonel Walsh's presentation near the beginning, where it afforded a remarkably good background for the restrained but effective statement of Joseph B. Eastman, and for the frank expression of Andrew Stevenson about the stern necessity for restricting allocations to the railroads, as much as the W. P. B. recognizes their needs.

Both of these speakers were deeply appreciative of the contributions being made by railway mechanical and stores departments to the

most efficient use of available materials and facilities. The activities of these departments in conservation, substitution and reclamation of materials were covered in considerable detail by other speakers. The prompt concentration of railroad men on these objectives is producing results in which the railroads can take much satisfaction.

An illustration is the saving of critical materials in freight car brasses. Railroad officers have promptly applied obvious measures for this purpose. Coincidentally, they have speeded up their investigations and studies. The considerable savings already effected are the result of several progressive steps, with more in prospect. Because of pressing necessities, costs must be given secondary consideration. This is true, as well, of efforts to find and apply substitute materials. Many roads have had excellent reclamation facilities for a long time.

New measuring gages are now necessary. The question now is not, does reclamation pay, but how can critical materials be best conserved?

The proceedings at the timely and important Cleveland meeting are reported elsewhere in this issue. They cannot fail to convince that the railroads are making good, and will continue to make good, because of the fine ingenuity and stubborn persistence being shown. Tremendous needed savings of materials and manpower are being accomplished; and they are necessarily the cumulative effect of many small efforts in every field of activity, rather than of a few large and dramatic operations.

## All Records for Efficiency Being Broken

In their great effort, with the co-operation of shippers, to render adequate service the railways apparently will in 1942 break every previous record of operating efficiency. Complete data for the first quarter of 1942 and incomplete data for the second quarter indicate that almost all have been broken in the first half of 1942.

Ton-miles of freight (revenue and non-revenue) handled in March were *larger* than in any previous month. Percentage of locomotives in bad order (needing repairs) was the *lowest* on record. Average miles traveled by each freight locomotive daily was the *largest*—98.5 miles, compared with 83½ in March, 1941, and 98.4 in October, 1941. Percentage of freight cars (railroad and privately-owned) in bad order was the *lowest*—3.1 per cent, compared with 6.2 per cent in March, 1929; with 5.7 per cent in March, 1941; and with 3.3 in December, 1941. The reduction in cars needing repairs, between March, 1941, and March, 1942, was equivalent to the provision of 48,000 additional cars; between March, 1940, and March, 1942, to the provision of 105,200.

Freight traffic handled in the first quarter of this year exceeded the previous high first quarter's record by 21 per cent. Average miles moved by each freight locomotive and each freight car; average ton-miles of service rendered with each car; average load of freight per car; average number of freight cars per train; average tons of freight per train—were all new high first quarter records. Average ton-miles of service rendered by each freight train hourly, while but slightly larger than in the first quarter of 1941, was 48.3 per cent larger, nevertheless, than in the first quarter of 1929.

Total carloadings were slightly smaller in May than last year because of the remarkable increase in average loading per car of less-than-carload merchandise. Consequently, the surplus of box cars actually increased from 33,705 in the last week of May, 1941, to 42,454 in the last week of May, 1942. But loadings of *carload* freight increased 7.2 per cent in May, and were only 2 per cent less than at the 1941 peak last October. This reduced the surplus of gondola and hopper cars from almost 17,000 in the last week of May, 1941, to less than 10,000 in the last week of May, 1942.

The menace to continued adequacy of service this year is the danger of a shortage of these open-top cars for coal and other heavy loading carload freight. In the week ended June 6 loadings of *carload* freight rose to 757,102, as compared with last year's peak of 763,599 in October. Between the first week in June, 1941, and the peak last October loadings of *carload* freight increased 71,000 cars, or 10 per cent. Plainly, if there should be between now and next fall another equal increase in traffic demands, carload freight will

have to be loaded heavier, and unloaded, loaded and moved with greater expedition than ever, or, it seems inevitable, there must develop shortages of some kinds of cars.

## Fewer and Longer Passing Tracks

When passing tracks must be lengthened to accommodate the longer trains now operated, certain problems growing out of the speeds of trains and the time required for stopping or accelerating them, as well as the use of modern signaling equipment, have influenced several railroads to abandon about half of their passing tracks, while improving train performance.

Years ago when freight trains were much shorter and were operated at maximum speeds of 25 to 30 m. p. h., they could be stopped and accelerated without losing much time, as compared with the time lost in stopping the longer and heavier trains of today from speeds 50 to 60 m. p. h. and then resuming speed.

The spacing of passing tracks from five to six miles apart was adopted for the operation of the lighter trains at the lower speeds. Based on present day freight train speeds of 50 m. p. h., however, one road determined that its passing tracks should be spaced on a time-distance basis of 12 minutes, or approximately 10 miles. As a result, on an engine district where the passing tracks were previously spaced five to six miles apart, every second siding was removed and some of the rail thus released was used to lengthen the sidings left in service. When installing centralized traffic control on 92 miles of single track, another road installed power switch machines at eleven passing tracks and abandoned eight other passing tracks as such, five of which were retained as only house spurs with one main track switch. On a 60-mile section of single track on still another road, which included nine passing tracks, one passing track was removed, and three were not signaled for use by through trains, when C. T. C. was installed with spring switches at several of the switches.

By installing a power switch machine to avoid the stop required by hand operation of a stand, a long train can be made to enter a passing track in about six to eight minutes less time, and likewise at a power switch or a spring switch a train can depart in about eight minutes less time. Such expedited movement results in trains occupying the main track a smaller part of the time, and they are operating at maximum speeds a greater part of time. Therefore, the trains get over the road more quickly, thus reducing the number of meets, and the need for passing tracks.

The details of these accomplishments in reducing the number of passing tracks on the Monon, the Pere Marquette, the Milwaukee and the Louisville & Nashville have been or will soon be described in articles in *Railway Age* and *Railway Signaling*.





Train Movements Are Now Authorized  
by Signal Indications

Enables road to handle war-time traffic of 50 trains daily with efficiency on 64 miles of single track

**I**NCREASED efficiency in handling a large volume of traffic occasioned by the war has been secured by the Seaboard through the installation of centralized traffic control on 63.5 miles of single track, 1 mile of double track and 6 miles of second main track between Richmond, Va., and Cochran. This installation is the first unit of an installation that is planned to extend over the complete engine district between Richmond and Raleigh, N. C. The Richmond-Cochran section was equipped first because of the track arrangements involved as well as the additional train and switching movements in the Richmond terminal and industrial area.

The C. T. C. was cut into service in sections, the last of which was completed on December 25, 1941, just in time to be of service in handling the peak traffic starting in January. As a result of the war, an unprecedented volume of traffic, totaling as many as 50 trains daily, has developed on this territory, and the records show that the trains are being handled satisfactorily and with no unusual delays or congestion. While no one can determine what difficulties would have been encountered if the C. T. C. was not in service, the operating officers and others concerned agree that it has proved itself during this period.

The power switches and semi-automatic signals of the C. T. C. system are controlled from a machine in the

## C. T. C. Solves Track Capacity Problem on Seaboard

dispatcher's office at Raleigh, N. C., which is 94 miles south of Cochran, so that the two-wire code control line circuit between Raleigh and Richmond is 156 miles long, a new maximum in this form of control.

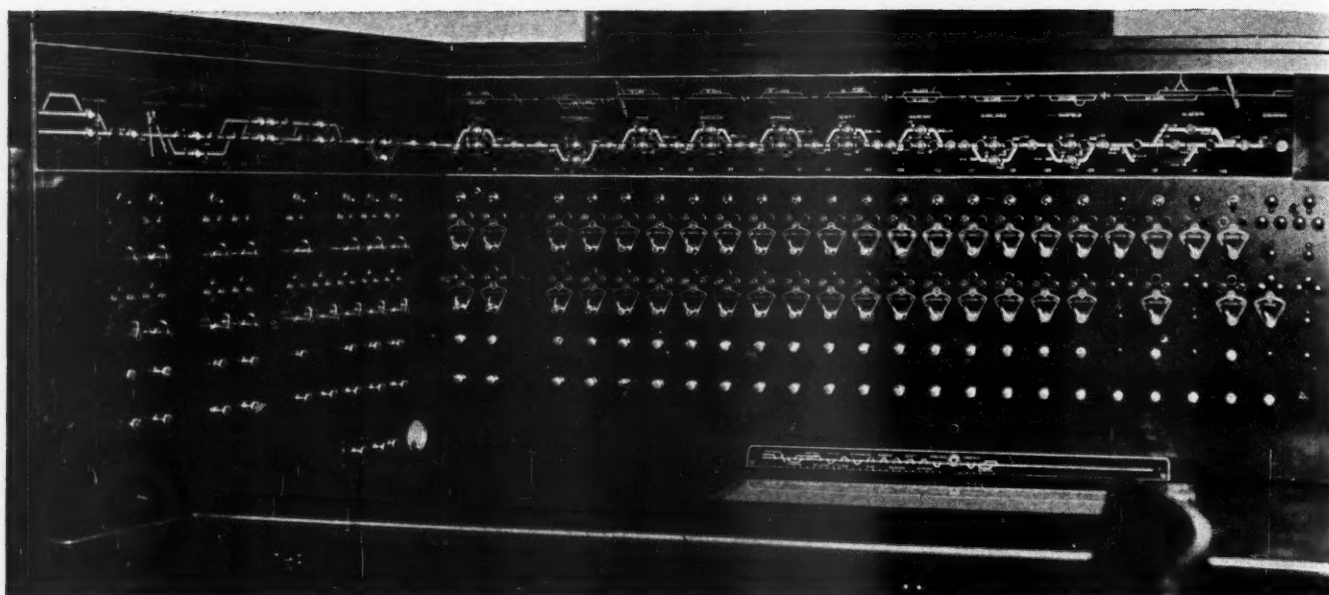
### Mostly Single Track

At Hermitage yard, in the north section of Richmond, the Seaboard connects with the Richmond, Fredericksburg & Potomac, and at Brown Street yard, 3.3 miles south of Hermitage, the Seaboard has an additional freight yard. Double track extends for 4.3 miles from Hermitage south through the Brown Street yard and through the Richmond passenger station to a point just north of the James river. Between the Brown Street yard and the James river, signaling is provided for train movements in either direction on both tracks, relieving congestion through the Richmond passenger station area.

From the end of this double track just north of the James river, the main line is single track southward to Cochran, with the exception that a second track, signaled for either direction, extends between M. P. 3 and M. P. 9. A crossover between the main track and this second track is located 9,500 ft. from the south end, so that this portion of the second track can be used as a siding. A second crossover, near the north end of the second track, permits movements between the South Yard siding and the second track.

This north and south line of the Seaboard connects with east and west lines of the Norfolk & Western at M. P. 25.5 near Petersburg, Va., and the Virginian at Alberta, Va., M. P. 61. The principal interchange is coal moving northward on the Seaboard to Richmond, and the return of empty coal cars to the connections. This traffic is handled by one or perhaps two turn-around crews daily, starting at Richmond. A 15.7-mile branch line extends from Bellwood, M. P. 8, to Hopewell. Between South Yard and Bellwood there are numerous turnouts from the main line, and a passing track, which leads to industries, warehouses and docks. The operation of fast through passenger and freight trains through this area, therefore, without interfering too greatly with the numerous switching and branch line movements, creates a serious problem.

As a part of the program, the No. 10 turnouts at the ends of passing tracks were replaced with No. 16 turnouts including 30-ft. switch points, thus increasing the speed limit from 10 m. p. h. to 25 m. p. h. when making diverging moves. Also, the passing track at Ryan was



The C. T. C. Control Machine Is Located In the Dispatcher's Office at Raleigh

extended to a capacity of 143 cars and that at Dinwiddie to a capacity of 84 cars.

#### Power Assignments and Traffic

The freight power assigned to the engine district between Richmond and Raleigh includes 10 high-pressure, high-speed Twin Pacific locomotives, rated at 2,700 tons, and 15 Mikado locomotives rated at 1,700 tons. The northward perishable fruit is handled in trains of approximately 60 cars in order to expedite the movement. The Silver Meteor, the Orange Blossom Special and other high-class passenger trains are hauled by Diesel locomotives, while mountain-type steam locomotives are assigned to the remainder of the through passenger trains.

A large proportion of the through seasonal passenger traffic consists of travel to and from Florida and other winter resort sections. The peak of that business is southward in January. The bulk of the revenue freight traffic is northward, consisting of a large per cent of perishables, citrus fruits and fresh vegetables moving at peak volume during January to March. Other commodities moving northward include lumber, cotton and finished cotton products, tobacco, paper plant products and various agricultural products, in addition to considerable iron and steel from Birmingham, Ala. Southbound freight traffic includes various manufactured prod-

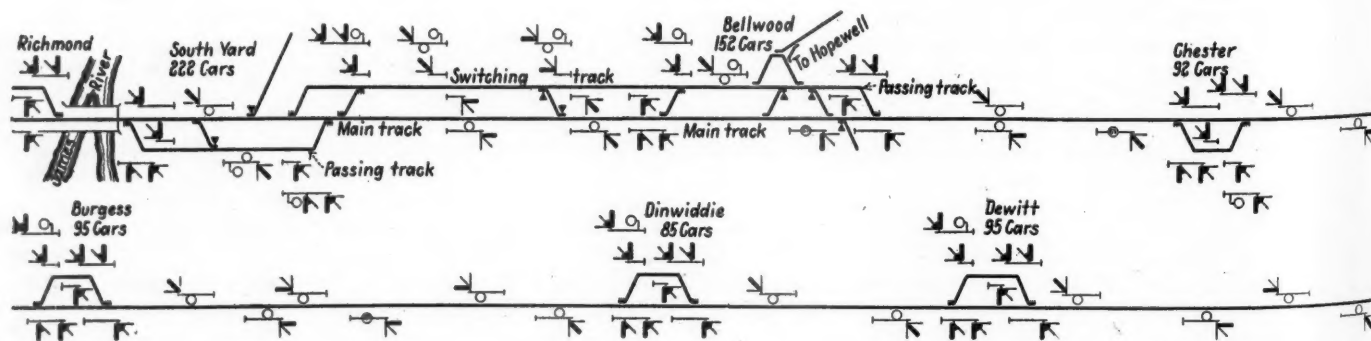
ucts, but on the whole the preponderance of loads is slightly northward. Due to heavy commercial business and movement in connection with the war program, traffic is now dense every month in the year.

#### From 35 to 50 Trains Daily

The winter schedules of through trains over the entire territory between Richmond and Raleigh include seven through passenger trains and one local passenger train each way daily, which, with extra sections of the through passenger trains, bring the total to 20 or more passenger trains on certain days. Four daily freight schedules are operated northward and three southward, with as many sections as required, bringing the maximum during January to 14 to 18 freight trains daily. Combined, the total number of trains on the Richmond-Norlina section has exceeded 50 on certain days.

In view of the grades, curvature and limited track capacity on this single track line, it is of interest to note the schedules on which trains are operated. For example, the northbound Silver Meteor is scheduled to traverse the 90.5 miles between Norlina and Bellwood in 94 minutes, and a through freight train, No. 94, makes this 90.5 miles in 136 minutes, with three scheduled meets.

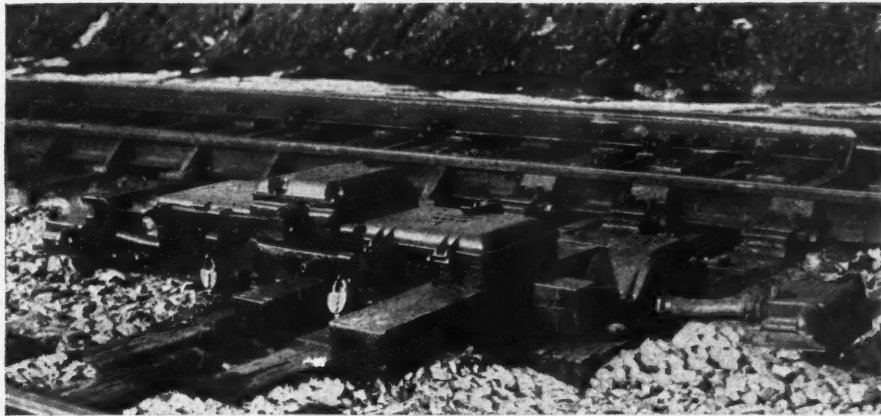
On the average, the new turnouts with their power switches permit a tonnage freight train to be advanced



Plan Showing the Location of the Tracks, Signals and Power Switch Machines



The Passing Track Switches Are Operated by Dual-Control Power Machines



from one station onto the passing track at the next station in approximately 10 minutes less time than previously when trains were required to stop to permit the operation of hand-throw switches when entering the passing track. Similarly, with a power-operated switch, a tonnage freight train can depart from a passing track in approximately 8 minutes less time than is required with hand-throw switches. Thus a freight train can pull out of a passing track at a given station, proceed to another passing track and get into the clear in approximately 15 to 18 minutes less time than if hand-throw switches were in service.

While the operating time table shows the time of scheduled trains at the various stations, under C. T. C. operation the trains keep going at authorized speed, until directed to take siding by the aspects displayed by the new semi-automatic signals, superiority of direction and rights by class being superseded by signal indication. They leave sidings in similar manner with this method of operation, meets and passes being made according to the minute-to-minute progress made by the various trains on the line, as made evident to the dispatcher at Raleigh, N. C., by the track-occupancy indication lamps on his control panel, every section of main track as well as each passing track being so indicated. The dispatcher is informed, therefore, of the location of each train in the entire C. T. C. territory. Under this procedure, numerous instances arise in which a train can be advanced one or more stations, whereas, with previous practice, it would not have been possible to issue and deliver train orders in time to take advantage of these rapidly changing conditions.

A record of train movements is made by an automatic train graph which forms a part of the control machine. The track circuit at each power switch is known as an

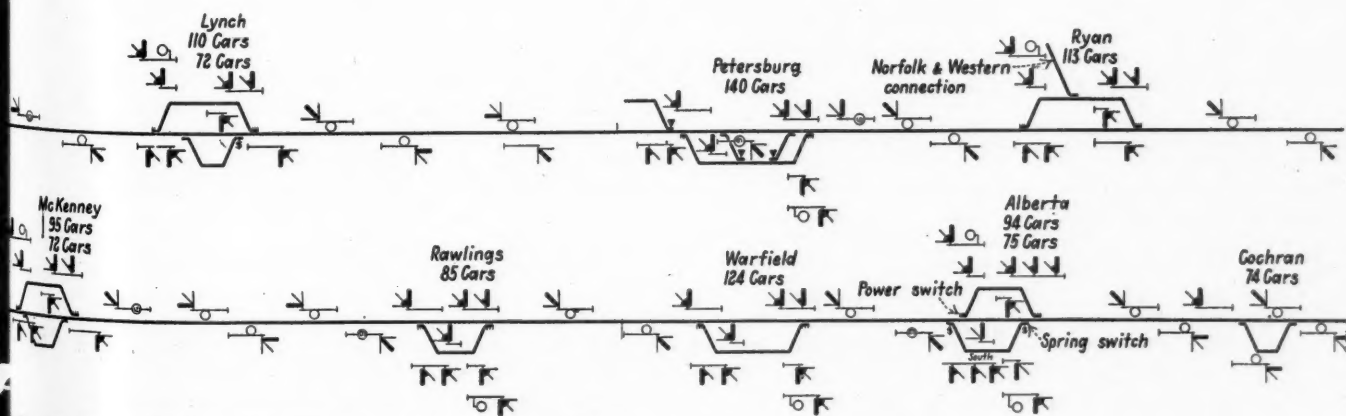
OS (out of station) section, and a pen is provided in the graph machine for each OS section. As the graph sheet moves under the pens at the rate of three inches an hour, each pen makes a vertical line. When a train enters an OS section, the corresponding pen is moved  $\frac{1}{8}$  in. to the right, and when the train clears the section, the pen returns to its normal position, thus leaving a jog in the line. By connecting these jogs with lines, a time-distance record of all train movements is completed.

In some instances, as many as eight to ten trains were on the 63 miles of single track at one time during January, and the automatic train graph record shows that none of the trains incurred unusual delay, the meets and passes being made on close time. In instances in which the trains are considerably shorter than the passing tracks, meets are frequently made without either train being required to stop.

#### Methods of Switch Operation

Prior to the change over to C. T. C., spring switch mechanisms were in service at seven passing track switches, including one at Rocketts, one at South Yard, two at Bellwood, two at Chester and one at Lynch. As a part of the C. T. C. project, power switch machines were installed at all of the principal passing tracks, the end of double track and at certain crossovers, totaling 31 power switches. Spring switch mechanisms with automatic mechanical facing-point locks were installed at the south end of the second passing track at Lynch, and at both ends of the second passing track at Alberta.

At each of the power switches and the two spring switches at Alberta, a complete arrangement of office-controlled and semi-automatic signals is provided to authorize and direct train movements. This territory



the Centralized Traffic Control Between Richmond, Va. and Cochran

was equipped with automatic block signaling in 1925. When changing over to C. T. C., the main-line station-departure signals were moved back to a point opposite the fouling points of the sidings. Three-unit color-light dwarfs were installed on the passing tracks to direct trains to leave, and a second two-aspect color-light signal was added to each of the station-entering signals to display a yellow-under-red aspect to direct a train to enter a passing track.

Where two passing tracks are provided and the switch of the second one is equipped with a spring mechanism, such as at Alberta, a third unit in the form of a take-siding indicator was added on the mast of the station-entering signal. Normally this indicator is extinguished, but when a northbound train is to enter the passing track west of the main line, the dispatcher sends out a control code which causes this indicator to display the letter S, and at the same time the two light signal heads each display red, and the distant signal displays yellow. The longer track circuits are the coded detector track circuit type with code at the rate of 120 per minute.

This C. T. C. insulation and the track changes and centralized traffic control included in this project were planned and constructed by forces of the Seaboard Air Line, the major items of signaling equipment being furnished by the Union Switch & Signal Company. The work was commenced under F. H. Bagley (now deceased), superintendent telegraph and signals, and completed under the direction of his successor, J. R. De Priest, and his staff.

## Study Board Issues "Public Aid" Exhibits

WASHINGTON, D. C.

**P**REPARING for the forthcoming hearings in connection with its study of public aids to transportation the Board of Investigation and Research created by the Transportation Act of 1940 is distributing exhibits which its research staff has prepared for presentation at the sessions. The hearings, beginning June 29, will be held in the Departmental Auditorium on Constitution avenue, between Twelfth and Fourteenth streets, Washington, D. C.

First of the exhibits distributed by the Board are highway and waterway exhibits. Others to be issued as they are compiled will be the railway and airway exhibits. The railway exhibits, according to the Board's list, will cover the status of federal and state land grants as of December 31, 1941; data on railroad loans and security purchases by Reconstruction Finance Corporation, to April 30, 1942; data on loans to railroads by the Public Works Administration, to April 30, 1942. The data contained in all of the exhibits "are preliminary and have not been approved or adopted by the Board."

### Highway and Waterway Exhibits—Seven of Each

There are seven highway exhibits and a like number on waterways. The former include a compilation of annual expenditures on highways from 1921 to 1940; a comparison of federal expenditures on roads and streets, including Public Roads Administration and Public Works Administration grants, with state and local expenditures, 1921-1940; federal expenditures by disbursing agencies; estimate of value of highway, road and street investment as of December 31, 1920; amortization of pre-1921 investment in highways, roads, and

streets, 1921-1940; annual expenditures—comparison of Board study with other studies; valuation and amortization of roads and streets as of December 31, 1920—comparison of Board estimates with others.

The waterway exhibits cover the annual cost of federal aids to waterways by individual projects, year 1940; consolidated total costs and annual costs for 1940 of federal aids to waterways; and separate cost analyses for the Mississippi river, Illinois waterway, Chesapeake Bay and tributaries, Atlantic intracoastal waterway, and Gulf intracoastal waterway.

The "explanatory text" accompanying the highway exhibits said that the measurement of public aids to highway transportation involves: (1) Determination of total annual expenditures made by all government agencies on highways, roads, and streets; (2) calculation of annual costs of such facilities to reflect the fact that annual expenditures provide highway services for a longer period than the year in which the expenditures were made; (3) comparison of annual expenditures and annual costs with a view to determining which is the more appropriate basis for use in a study of public aids; (4) allocation of annual expenditures and/or annual costs between motor vehicle and general use roads; (5) allocation of annual expenditures and/or annual costs among the various classes of motor vehicle users; and (6) comparison of payments made by motor vehicle users with costs assignable to them.

### Annual Highway Costs Not Yet Determined

"At date of writing," the statement continued, "the research staff has completed the first of the above steps and part of the work involved in the second and third steps. Annual costs, however, have not yet been determined. Preliminary planning concerning the other phases of the study have been carried on and actual analytical work will get under way as soon as this report is released. The Tax Division of the Board has made considerable progress in compiling the data on payments by motor vehicle users."

Among the major questions encountered in connection with the compilations of the data on highway expenditures were those relating to the classification of roads, the period to be studied, and the sources of data. With respect to the classification of roads, the Board's staff grouped the expenditures under four headings as follows: Primary highways; secondary and local roads; town and city streets; urban extensions of primary highways. Primary highways are defined as "roads of high traffic density with a relatively large proportion of through as contrasted with local traffic, which have been built to comparatively high construction standards." Included are "practically all" of the federal-aid highways, and all state highways "other than those which are clearly recognized as of secondary significance or which were parts of a county or local system before becoming state roads, and such federal domain roads as public lands highways, the more important forest highways and national park roads and a few others." With respect to the limits of the highway study, the Board set them at 1921 and 1940, except for federal expenditures and for the estimates of the pre-1921 investment in the various classes of road systems.

The data on primary highways show that during the 1921-1940 period, a total of \$9,844,752,000 was spent by all agencies on the construction of such roads, while \$3,517,897,000 was spent for maintenance. An interest item of \$955,069,000 on state and local expenditures only brings the grand total to \$14,317,718,000. The grand



total for secondary and local roads was \$13,430,594,000; while expenditures on town and city streets and on urban extensions of primary highways totaled, respectively, \$11,437,489,000 and \$401,891,000. Thus the grand total spent on all highways, roads, and streets during the 1921-1940 period was \$39,427,519,000. Of this amount, \$21,-889,954,000 was for construction, and \$14,082,432,000 for maintenance; while the interest item is set up as \$3,455,233,000. State and local agencies are shown to have spent \$35,394,382,000 of the total, and the federal government \$4,033,137,000.

Other exhibits compare the Board's figures with those in former Co-ordinator Eastman's report on Public Aids to Transportation; with figures published by the Department of Commerce; and with data included in the report made for the Association of American Railroads by C. B. Breed, C. Older, and W. S. Downs. Figures in the co-ordinator and the Breed-Older-Downs reports ended with 1937. In that year, for example, the total construction and maintenance expenditures on primary highways is given in the Board's exhibit as \$745,957,000; in the co-ordinator's report as \$728,245,000; and in the Breed-Older-Downs report as \$852,962,000. For 1937's total expenditures on all highways, roads, and streets, the Board's figure is \$2,159,708,000, as compared with the co-ordinator's \$2,004,245,000, and the Breed-Older-Downs report's \$1,928,689,000.

### \$2.59 Billion for Waterways

Among the waterway exhibits is one showing consolidated total and annual costs of federal waterway aids. The total cost of the waterway program as of June 30, 1940, is given as \$2,592,877,067.62, including \$1,839,219,053.02 for new work, \$703,843,300.35 for maintenance and \$49,814,714.25 for "value of plant, stocks, and undistributed items." A further breakdown shows that the new-work expenditures have involved outlays of \$666,531,509.04 for seacoast harbors and channels; \$146,843,157.62 for "intracoastal canals and other waterways"; \$813,589,175.64 for the Mississippi river system; and \$204,641,490.38 for lake harbors and rivers. The larger elements in the maintenance total are \$271,237,245.11 for work on the seacoast harbors and channels, and \$241,707,849.73 for maintenance of the Mississippi river system.

"These figures," said the comment in the exhibit, "represent amounts directly charged to navigation by the Army Engineers. There is a strong probability that some expenditures have been made for flood control which were included in the totals shown, particularly in the earlier period of waterway development when the constitutionality of direct federal expenditures for flood control had not been clearly established. On the other hand, there is a strong probability that some expenditures now charged to flood control aid navigation. The problem of cost allocation in the consolidated report represents insuperable difficulties of analysis, and no attempt has been made to go behind the Army Engineers' reports. For individual projects, however, careful attention to cost allocations will be given where multiple purposes exist in specific waterway improvements."

### Annual Waterway Costs Figures for 1940

To get down to total annual costs for 1940, the exhibit writes off as obsolete the \$122,124,145.12 appropriated for waterways prior to 1890. This amounts to 6.64 per cent of the cumulated total appropriations prior to June 30, 1940. Also, it lumps annual interest and depreciation

costs into a 4.27 per cent figure for "capital costs." Thus the 1940 cost for federal aid to waterways is worked out as follows:

Unadjusted cumulated total cost, new work ...	\$1,839,219,053.02
Less 6.64 per cent write-off for obsolescence..	122,124,145.12

Adjusted total costs, new work .....	\$1,717,094,907.90
--------------------------------------	--------------------

Capital cost at 4.27 per cent .....	\$ 73,319,952.57
3.5 per cent interest on plant and undistributed items .....	1,743,515.00
Average annual maintenance, 1936-1940 .....	38,209,985.73

Total annual federal cost, 1940 .....	\$ 113,273,453.30
---------------------------------------	-------------------

With respect to the average federal cost per ton on all water-borne commerce, it is stated that little meaning can be attached to such a figure—"since separate channels differ so greatly in their physical and traffic characteristics." Any study of federal expenditures for waterways "which is to contribute to an understanding of public policy must analyze individual projects in the light of local or regional characteristics," the exhibit's comment said. Nevertheless the exhibit gives "a statistical average federal cost" of 18.6 cents per ton for the total commerce of 607,900,000 tons reported in 1940. "Assuming that the reported value of \$36.45 per ton in 1938 still holds—the Army Engineers stopped reporting value of traffic in that year—the *ad valorem* subsidy to waterway traffic represented is one-half of one per cent," the comment added.

In studying individual waterways, the Board's staff eliminated 212 federal projects from consideration "on the grounds that no federal funds have been expended on them for at least 10 years and no traffic has used them for at least three years." Total federal expenditures for new work and maintenance on the projects thus eliminated has been \$18,123,086.64.

### "Miscellaneous Services to Navigation"

Finally, the exhibit notes that, in addition to the improvements administered by the Army Engineers, other federal agencies render "miscellaneous services to navigation." Listed in that connection are the Coast and Geodetic Survey which spends "something less than \$1,000,000 a year for services to transportation"; and the United States Coast Guard's Light House Service "which spends approximately \$10,000,000 a year for lighthouses." Available records, the Board's staff found, "do not permit accurate allocation" of these items to water-borne domestic commerce. Moreover, such costs "would be so small as not to add significantly to the total findings on public aid."

Another of the waterway exhibits gives computed federal costs by traffic units for all active waterways for the year 1940. Generally, they are on a per-ton basis, although the cost per ton-mile is given where available. Then, as noted before, there are the other studies dealing separately with five waterway systems. Among the latter is the Mississippi river, its exhibit giving the 1940 federal aid per ton-mile by sections of the river as follows: From New Orleans to mouth of passes, nine-tenths of a mill; from mouth of Ohio to New Orleans, 1.7 mills; from the mouth of Missouri to mouth of Ohio, five mills; from reservoirs at headwaters to mouth of Missouri, 1.02 cents. The Illinois waterway exhibit shows the 1940 federal cost per ton-mile for that improvement 4.7 mills. The figure for the Atlantic Intracoastal Waterway is 5.5 mills, while that for the Gulf Intracoastal Waterway is nine-tenths of a mill.



Compare This Room With the Old Interior, as Shown in One of the Accompanying Illustrations—Both Views Being Taken from Approximately the Same Point

## Old Station on the Omaha Appears in Modern Dress

Eau Claire structure, aged five decades plus, is now as up-to-date as the streamliners it serves

**T**HE extent to which an outmoded passenger station can be modernized successfully through a simple but pleasing design and the use of up-to-date materials, is demonstrated by the manner in which the Chicago, St. Paul, Minneapolis & Omaha reconditioned its 50-year-old station at Eau Claire, Wis., with only minor structural changes. In startling contrast with its former obsolescence, this old station, through the use of materials that have only recently become available at relatively small cost, has been modernized and, without change in its pleasing exterior, its appearance and appointments are completely up to the minute.

From the architectural standpoint, this station was well designed, with good proportions and pleasing lines, and with all parts balanced. Two stories in height, with heavy walls of brown stone and a tile roof, this building, which had been well maintained, was good for many years further service. Yet in practically every other respect, as a modern facility, it was completely outmoded.

### All Appointments Were Obsolete

Built more than 50 years ago to meet the conditions of that period, and constructed of the materials then available, every facility in the interior of the station was obsolete with respect to modern standards. The interior arrangement was characteristic of the period of its construction and of the decades that followed; that is, it

consisted of the traditional men's and women's waiting rooms, separated by an enclosed ticket office and the toilets, and connected by a dark narrow hall between the ticket office and the toilets.

The walls and ceiling were finished in plaster above a wainscot belt of wide boards and narrow battens. The lower members of certain wooden trusses used in the construction of the building, and the upper portion of the stair leading from the outside to the second-floor offices, obtruded through the ceiling, while the wood floor was laid with wide boards running longitudinally of the relatively narrow waiting rooms. The furniture consisted of the customary fixed settees arranged in court-room style, with baggage lockers, telephone booths, vending machines and scales placed in corners or at odd places along the walls. To add to the general unattractiveness, the plastered areas were painted with a dark neutral color which created a somber and depressing atmosphere throughout the station.

Partly as a result of the increased traffic which followed the faster schedules and modern trains of recent years, but largely because the growing discrimination of patrons created an insistent demand for better accommodations and more pleasing appointments, it was decided to modernize the facilities and improve the appearance of the station, to bring them more nearly in line with the character of the train service and with the importance of the thriving and progressive city. A thorough examination of the building indicated that it



was sound structurally and, since it was satisfactory architecturally, only minor changes were made externally and these were required primarily in connection with the redesign and rearrangement of the interior. However, the exterior was cleaned thoroughly by sand-blasting and the wood trim and canopies were painted in light colors which have added much light and life to its appearance, without sacrificing that beauty which age lends to a building of this type.

In plan, the station is long and narrow, with a ceiling of moderate height. The interior width is 32 ft., and 119 ft. of the length was allotted to the passenger facilities. Of this, the men's and women's waiting rooms occupied 52 ft. and 43 ft., respectively, with 24 ft. assigned to the ticket office and toilets. In addition, a lunch room 32 ft. by 32 ft. occupies the west end of the building and the general agent occupies an office extending across the east end.

### No Old Facility Allowed to Remain

As the plan was developed, the partition between the men's waiting room and the lunch room remained intact. All other partitions were torn out, together with the toilets, the ticket office and the stairway leading from the outside to the second-floor offices. The latter was replaced with a modified circular stairway, enclosed in a round shaft which extends into the waiting room at the west end of the ticket counter, and this has been used to mount a large electric clock and a quick-change bulletin board. Removal of the partitions made it necessary to install I-beams to support the second floor where the walls of the toilets and ticket office had provided the support previously. The octagonal bay window in the ticket office was also torn out and a new circular

bay window, glazed with plain and colored plate glass, was built into the exterior wall, giving a nearly round floor plan for the new ticket office. These were the only structural changes that were made; the new partitions were not essential to the structural stability of the building.

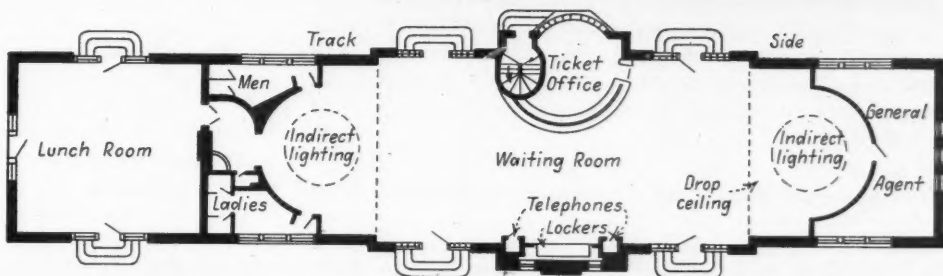
Removal of the partitions created an opportunity for complete remodeling of the interior of the station and, to avoid the harsh rectangular effect produced by the long narrow room, circles and semi-circles were chosen as the motif around which to develop the design. The ends of the waiting room, which is 32 ft. wide by approximately 100 ft. long, are semi-circular, with dropped ceilings to conceal the old trusses which were so un-

(Continued on page 1190)

The Old Interior—Note the Long Line of Fixed Seats



In the Rearrangement, the Entire Floor Was Thrown Into One Room



The Open Ticket Counter and the Cozy Chairs Give a Wholly Informal Air to the Waiting Room



# Results Suggest That Railroad Men Know How to Railroad\*

Accomplishments of present regime raise question as to who, seeking to replace it, might better its record

By M. W. Clement

President, Pennsylvania

**T**HE depression that followed the depression left the railroads at low ebb. They had gone through a long period of lean years. They were just beginning to emerge from this condition when the war broke out in Europe, in the fall of '39. Almost overnight, rail transportation went from the near-bottom of depression to the near-top of prosperity. Equipment that had not seen service for a decade—much of it worn out standing still—was brought into action and put to use, on tracks that had seen no great volume of business in years.

That was the beginning of the war. Fortunately for the country, practically all of the men in charge of American railroads had been through the first World War and recalled vividly the congestion of that period—a congestion that was caused, (1), by the shipment of vast quantities of freight, particularly to the ports, regardless of the ability of consignees to receive it or of available ocean shipping to handle it; and, (2) by the government requirement that the railroads give preferred and priority movement to government freight without proper discrimination as between kinds of freight; also without proper determination as to whether it could be absorbed at destination.

## Mr. Roosevelt Relied on Experienced Railroad Men

Fortunately, too, for the country and for the railroads the Chief Executive of the United States had the forethought to co-operate with experienced railroad men in having a review, study, and report made on the railroad situation in the spring of '39. With the war clouds slowly gathering in Europe, the Administration and the railroads were planning for the future before the war actually started, trying to anticipate what the railroads should do when the crisis came.

It was likewise fortunate that the Army and Navy, together with the railroads, had been studying this problem and planning ahead for several years before the war in Europe broke out. The result was that, when the clash came in September '39, the railroads, in spite of the effects of depression years, moved off to their appointed task in accordance with pre-arranged plans. Immediately, through their central organization in Washington, they stood together behind the government, the Army, and the Navy, in meeting the transportation demands.

As in the other World War, the manufacturing industry of this country gradually took on a large war load for the Allies, resulting (soon after the war in Europe started in '39) in a tremendously increased load on the

railroads of the United States. A temporary lull occurred in the Spring of '40, but from then on the load has kept increasing and the railroads have kept right on handling it—and doing a remarkable job well. (Ton-miles in '40 increased 11.9 per cent over '39; in '41 they were up 27.3 per cent over '40; in the first quarter of '42 they were 28.7 per cent above the first quarter of '41 and 83.4 per cent higher than in '39.)

The railroads were supposed to be "through." If you do not remember, read the Congressional investigations on the subject; read the government records; read the minutes of banking associations' conventions; consult the general consensus of the planners of the day, both in and out of government service—all agreed that the railroads were becoming an outmoded form of transportation; that the waterway, highway, and airway were to supplant them; that they were not worthy of much support; and certain banking institutions boasted that they had lightened their holdings of railroad bonds.

## Germany Guessed Wrong on Transportation

It is interesting to note that these ideas were also prevalent in Europe, and that the European railroads were also losing their position in favor of other forms of transportation. In Germany particularly, the national effort was expended on forms of transportation other than rail, and it is now generally accepted that Germany entered the war with its railroads in none too good shape. Germany has since had to seize rolling stock wherever it could be found, and is said to be still without adequate locomotive and car equipment. This is probably their situation approaching this summer, and they are admitting publicly that on the maintenance of their supply lines—which must be largely railroad—depends the success or failure of their armies.

This early contempt for the railroads has been echoed here and abroad, by both amateur and professional tinkerers. They may have raised some question in the minds of the people—but certainly not in the minds of railroad men themselves—as to their ability to meet the load that was coming to them, if allowed the opportunity to meet it, if allowed materials for new equipment and repairs to old equipment.

This general philosophy of defeatism as to the railroads, while it was articulated by many in and out of government, was never entertained in the mind of the Chief Executive of our country. He went to the railroads themselves as the ones who knew how to get prepared so far as transportation was concerned.

Under the leadership of men whose names are watchwords in the industry, and through their Association at Washington, the railroads had worked along through the

\* Abstract of an address delivered June 15 at dedication of new Technological Institute, Northwestern University.



years keeping up the morale in their industry; keeping up a relationship with labor that is still an outstanding example in that field; keeping up their public contacts individually and through shippers' associations; and continuing to perform better and improving service through all that period. They had strengthened themselves through centralized activities and, while they were not as strong financially as they should have been when the war broke out, they were able to move forward quickly.

### Carriers Work Closely With Armed Services

Throughout this period, and especially from the first of September '39, the central organization of the railroads in Washington, and the individual railroads themselves were continuously co-operating with the Administration and with the various departments of the government, including the Army and the Navy; and, more recently, the Office of Defense Transportation. These services, working efficiently and intelligently with the railroads, deserve a great deal of credit for the transportation results attained.

Meanwhile, through their investigations, the railroads were estimating the peak load expected in each succeeding year, calculating the cars and engines and maintenance work necessary to meet it. As the load was determined, it was allocated to the individual railroads in terms of equipment required, and the railroads—both individually, and jointly as a group—have well fulfilled their individual and collective part in the whole program. During this period, too, railroad labor and railroad management met, faced, discussed, and settled the many problems that war brings to labor relations. Except for minor trouble here and there, each has recognized the problems of the other and both have moved together in performing the transportation essential to success of the national effort.

First, in enabling the railroads to take the upward surge of war transportation in their stride, was the rehabilitation of railroad car equipment. So that in '42, additional cars in service over '39, numbered not tens of thousands but hundreds of thousands (actual figure, April 1, 1942, was 232,095 cars).

### Dealing With the Oil Emergency

Cars cannot move without engines. Paralleling the increased use of equipment it was necessary to restore the hauling capacity of the railroads. With the failure of the tanker as the agency for the delivery of the needed oil and gasoline supply to the East, it became necessary to inaugurate a railroad movement that had not existed in years—a railroad tank-car movement. Prior to the summer of 1941, only a negligible amount of crude oil and its products were shipped into the seventeen states on the Atlantic seaboard by railroad. Because of the growing shortages in tanker carrying capacity, the oil industry took steps to make up the deficiencies by the use of railroad tank cars, the railroads cooperating by making drastic reductions in rates. By January 1, 1942, tank car shipments had reached a new high record, and they have kept constantly increasing by hundreds of thousands of barrels per day, requiring a thousand engines. (During January, 1942, 100,000 barrels moved to the East daily; it rose constantly, reaching the figure of 706,800 barrels daily during the week ending May 23.) This is a remarkable movement, resulting from the co-operation of government agencies, the oil industry and the railroads.

It also became necessary, due to diversion of freight from the Atlantic ports, for the railroads to assume the

transportation of this freight to and from other ports. This increase in business on the railroads, which could scarcely have been anticipated, required still more engines. A large engine repairing, building and buying program, which so far has kept pace with the movement, was put into effect; so that in the forepart of 1942, engines available over September '39 could be numbered in thousands (3,686 being the exact figure on April 1, 1942); and with nearly a thousand new ones yet to come.

With all the other forms of so-called "improved" transportation, with the great progress attributed to the inland waterways, the coastwise lines, and the truck lines—all of them having governmental assistance and subsidy during those years of railroad disparagement—it was never anticipated that even in an emergency rail transportation would pass the peak of the last war, or the peak of the boom period of '29. But, as each of these other agencies has been unable to fulfill its expected place in transportation—because of circumstances beyond their control—the war load has fallen almost in its entirety on the railroads. Now the load on the railroads is in excess of anything in their history; and, with the gradual passing of waterway, highway and airway transportation, the peak load prospects of the railroads appear far in excess of any peak load ever anticipated.

### Railroads' Task Almost Doubled in Four Years

In addition to the cars in which to load the freight, and the engines to haul the cars, the roadway facilities on which they are to be transported will be called upon to handle far in excess of anything they ever had to haul before. Besides keeping abreast with the load—in terms of cars to carry it and engines to haul it—this private highway (the railway) upon which it has to move, has also had to increase its capacity. Comparing '42 with '39, the way the public measures our business, carloadings, had increased a third; but the way we measure our business, ton-mileage, had almost doubled.\* So that, not only was the business greater than any record before attained, but it was being handled with increasing efficiency.

All the foregoing has to do with the movement of goods and supplies. Paralleling the freight performance is the passenger performance. The private automobile, it appeared, had gradually and to a large extent supplanted the railway as a means of transportation. Many of the men who went into the Army took their first rail rides as they went to their camps.

Rail passenger traffic, under war conditions, gradually increased, up to Pearl Harbor; and since then, with the enormous movement of troops and the difficulties of the automobile as a means of war transportation, the railroads have been called upon to perform a form of transportation that presumably, a decade ago, was passing out—rail passenger travel—and now the railroads are handling the greatest passenger load in their history.

Increased railroad passenger transportation moved off as smoothly and efficiently as the freight load had been taken on, increasing gradually as the war spread out in Europe, as preparedness and defense got under way at home. With the drafting of a large Army, Lend-Lease

\* 38.2 per cent increase in carloadings; 86.8 per cent increase in ton-miles during first 4 months of '42 against same period of '39.

The ton-miles in 1941 on American railroads were the greatest on record, being 6.2 per cent greater than in 1929, the previous record.

	1939	1941
Gross ton-miles per freight train-hour.....	32,808	34,684
Freight locomotive-miles per day.....	104	116.4
Passenger locomotive-miles per day.....	41.3	45.7
Net tons per loaded car.....	26.9	28.5
Net tons per freight train.....	813	915

assistance to the Allies, and the declaration of a state of war ourselves, the capacity and performance of the railroads as extraordinary passenger carriers has gradually increased to keep pace with our war needs. (Passenger-miles in '40 were 4.9 per cent more than in '39; in '41, 23.6 per cent more than in '40; in the first quarter of '42, 37.5 per cent more than in '41 and 78.2 per cent more than in '39.)

Whether railroad transportation in the future will continue to move on will depend on how much more war traffic the railroads are called on to carry, and the restrictions that are placed on the railroads. The building of cars has been practically stopped. The acquisition of engines is being limited. The building of the facilities is slowing down under priorities. Such are the fortunes of war. Without too many restrictions, the roads can go on handling the load that is placed upon them to the end of the War, just as they have since its beginning. Rationing of transportation will come only as a result of restrictions placed upon the railroads which prevent expansion of their facilities and their capacity.

And, lest we forget—because it is the only industry so doing—all these improvements in the railroads, all this building up of their facilities, their engines, their cars, their capacity, all these millions, these billions—have been provided for entirely out of the funds of the railroads themselves. They have seen each of their subsidized competitors in difficulties under war conditions while they themselves have gone on—a strictly regulated industry; a heavily taxed industry, moving without noticeable effort the largest volume of traffic they ever carried—fulfilling a destiny that could be accomplished only by the ingenuity of American transportation men, and the industrial men allied with them.

The railroads are handling wartime transportation, and handling it successfully and efficiently on the basis of their own resources. This is worth emphasizing because, today, when the thought is everywhere in the air that everything should be done by the government, we have here an outstanding illustration and proof of what private industry can accomplish. The railroads are moving every ton of freight and all the passengers, including hundreds of thousands of soldiers, that have to be moved in the war effort. There has been no breakdown and no failure, and in the light of the actual experience there is nothing whatever to suggest that any better job would be done, or that as good a job could be done, if the task were entrusted to any other agency than the American railroads themselves.

## Old Station on the Omaha Appears in Modern Dress

(Continued from page 1187)

slightly in the former waiting rooms. Obviously it became necessary to relocate the toilets, and they were placed at the west end, back of the semi-circular wall of the waiting room. New and completely modern plumbing was installed, and a women's lounge or powder room was provided, which is fitted with chairs and a built-in "vanity." The men's and women's toilets are separated by a curved corridor leading to the lunch room, and this is lighted through a curved glass-block wall.

While the plastered surfaces were retained for the walls and ceiling, except for the drop ceilings, the old wood wainscot was removed and replaced with new Johns-Manville decorative Flexboard wainscot in 5 and 8-ft. heights, with bright metal dividing strips and a cap or crest course of colored Flexglass. The reflecting

surfaces of the circular dropped ceilings are finished with a thick wood-fibre board, known as Bevel Panel Board, also manufactured by Johns-Manville. A new terrazzo floor with harmonizing border and base was laid, and to emphasize the circular motif, wide bands of darker color radiate from the center of the ticket office.

All window and door frames were removed and replaced with new frames and sash, Philippine mahogany being used for the trim and the flush doors. The windows were glazed with a combination of alternate colored plain and ribbed plate glass, producing an unusual modern effect.

### Ticket Counter Is Center of Interest

The ticket counter and office were designed to be the center of interest. The counter is of the open type and, in keeping with the basic motif, is semi-circular in shape. The front is Flexboard and the top is covered with red linoleum. The design of the top is unusual, in that it is divided centrally by a raised portion with brilliantly illuminated glass sides. The width of the counter is such, however, that there is ample width for the needs of both the agent and the patron. The glass on the agent's side is ribbed and sandblasted to diffuse the light onto his working space, while that on the public side is backed with colored photographic transparencies showing the "400" with scenes and skylines along its route.

Correcting one of the unsightly features of many ticket offices, drawers and compartments have been built into the counter on the office side, and all tickets, tariffs, folders, cash and stationery are kept in these storage spaces. This requirement, together with the metal office furniture, permits the ticket office always to present a neat and orderly appearance, all the more important because all parts of the space are open to public view.

Lighting and heating were in keeping with the remaining features of the old station. The few hanging fixtures gave harsh lighting, with deep contrasting shadows and dimly lighted corners. Heat was supplied by means of five large circular cast-iron radiators set in a row on the median line of the waiting rooms, three on the men's side and two in the women's room. The lighting fixtures were removed, the old wiring was torn out and new louvered fluorescent indirect lighting was installed throughout the waiting room to give soft and well-dispersed illumination over the whole area. Special arrangements of the indirect lighting were made in connection with the dropped ceilings and the circular arrangement of the ends of the room. New concealed copper radiation was installed in recesses and offsets in the walls, where it is hidden by the Flexboard wainscot.

Two telephone booths and 20 steel baggage lockers were built into a recess in the wall opposite the ticket counter, which was left by the removal of the toilets. They were constructed with Flexboard and crested with mirror and brick-red Flexglass to give the appearance of being an integral part of the structure.

Adam green and apricot were chosen as the main theme for the color scheme, and they were used for decorating the main walls and main ceiling area. To give harmonious contrast and thus avoid monotony by breaking up the large expanse of ceiling and wall, the drop ceilings and the cylindrical enclosure for the stairway were painted with a rich cobalt blue, with silver striping and modernistic designs at appropriate points.

In the entire design, as well as in the application of the color scheme and the lighting arrangement, every effort has been exerted to avoid any appearance of formality and to create a bright and cheerful atmosphere that impresses one immediately upon entering the room.



In furtherance of this idea, the old unsightly, immovable settees have been replaced with chromium-plated settees, rockers and lounging chairs, upholstered in rich colors, that can be moved and grouped as desired, together with writing desks for guests and sand jars for smokers.

Plans for the modernization of this station, which was done at the suggestion of Carl R. Gray, Jr., executive vice-president of the road (now manager, Military Railway Service, United States Army), were prepared and the work was supervised by the engineering department of the railway, under the general direction of R. R. Strother, chief engineer.

## The Wheat Question Is Still Perplexing

**D**ISCUSSIONS as to the transportation of wheat occupied the major portion of the 63rd annual meeting of the Trans-Missouri-Kansas Shippers Board. This session was held at the Hotel Broadview, Wichita, Kan., on June 12, directed by Rex M. Nielson, general chairman (general traffic manager, William Volker & Co., Kansas City, Mo.).

The commodity committee in charge of grain reported that the carloadings in the third quarter of 1942 would amount to 42,000, as compared with 73,224 in the same period last year, or a decrease of 42.6 per cent. The effect of the storage situation on wheat transportation will be further understood when it is remembered that the 1941 loadings were also materially limited by lack of storage space, so that the 1942 wheat loadings will be far behind those of 1940 and previous years.

Representatives of each of the factors in grain transportation were present—the growers, the grain trade, the U. S. Department of Agriculture, the Office of Defense Transportation and the railways. For the grain trade, F. A. Theis, president, Simonds-Shields-Theis Grain Company, painted a gloomy picture, as far as marketing is concerned, of full elevators everywhere, with absolutely no possibility of any sizeable movement. The Commodity Credit Corporation, which, under the Department of Agriculture, has charge of the tremendous quantity of wheat now blocking the elevators, is taking certain measures to get some of the grain on the market and out of storage. Some grain is moving under the "feed-wheat" plan, some is being used to manufacture alcohol, but the quantity moved for these purposes is negligible when compared with the total. This year, even more than last, the majority of the crop must be held on the farms. The C. C. C. is transferring several million steel bins, formerly used in Iowa and Illinois for coarse grain storage, to the farms in the winter wheat territory, but this will only partly relieve the situation. Automobile salesrooms, garages, sheds and empty buildings of all sorts are being converted into storage space for grain.

In one respect, all the interests concerned were in agreement. There can be no wheat transported for storage this year except under permit. Moreover, it is practically certain that the so-called "free" or "cash" wheat moving under sale orders will also have to be handled under permits. While much of last year's crop was transported under permits, this year's condition of starting the season under permits is unparalleled in the entire history of the wheat movement, and has required a radical readjustment of the handling methods. It was the thought of certain factions that the railways should

take over the permit system, but, as pointed out by L. M. Betts, manager, Closed Car section, A. A. R., the railways are perfectly prepared to handle the movement; there are no shortages in cars suitable for handling wheat and there is no reason for asking the railways to take over the permit distribution.

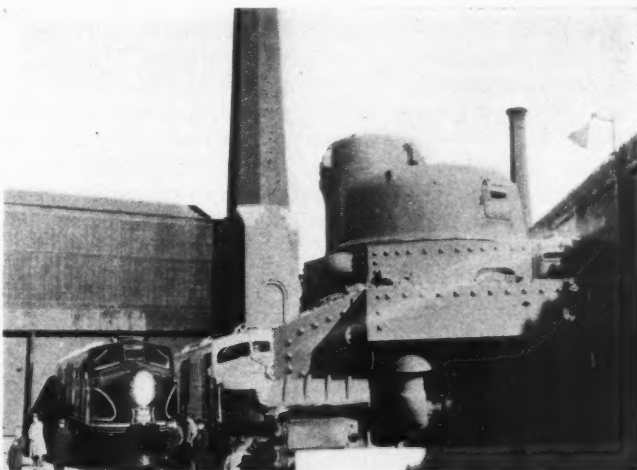
Both the C. C. C. and the O. D. T. have expressed great interest in seeing that the farmers get equitable handling under the permit system and that "distressed areas," where overproduction or threatened deterioration of wheat exists, are afforded relief. Neither of these agencies, however, has expressed a desire to take over the direction of the permit system. Thus the grain trade is left to handle the permits through its various terminal committees.

The Kansas City committee has set up an office to study all phases of the wheat situation and to assign permits without regard to previous customer relationships. The committees at the sub-terminals such as Wichita and Salina, however, are operating on the basis of maintaining the customer relationships of past years, but on a much more limited basis. All the committees expressed the fear, however, that regardless of the system used and the impartiality of its operation, they might be charged with discrimination before the Interstate Commerce Commission. The committees were told by F. S. Keiser, transportation consultant, O. D. T., that they had nothing to fear on this score. He was convinced, he said, that the committees were acting and would continue to act in good faith, and, so long as this condition exists, the O. D. T. will support the committees in their actions.

The work of these committees in assigning permits will be difficult. It is lightened, however, by the fact that the available storage space is so limited that the elevators will be full within a week or ten days. After that, only consumer demand will make space available. From a transportation standpoint, the permit system precludes any possibility of flooding any particular terminal with cars that cannot be unloaded promptly and also eliminates the use of railroad cars for the storage of wheat during a period when they are badly needed for loading war production commodities.

In view of the importance of the proceedings to the winter wheat territory, three different broadcasts were arranged by the A. A. R. These broadcasts explained and summarized the actions taken, and were participated in by several of the railway officers and grain men in attendance.

\* \* \*



An Engine of War Takes Its Place Beside Engines of Peace at an American Locomotive Company Plant. This View Shows a Light Combat Tank Loaded on a Railroad Car For Delivery

# Conservation—

# Substitution—

**A**DDRESSES by Joseph B. Eastman, director, Office of Defense Transportation, and Andrew Stevenson, chief, Transportation Equipment Branch, War Production Board, together with three papers by railway officers on the subjects of conservation, substitution, and reclamation of materials, provided a railway program of unusual interest at the semi-annual meeting of the American Society of Mechanical Engineers held at Cleveland, Ohio, June 8 to 10, inclusive. The railway program, sponsored by the Railroad Division of the society, covered both morning and afternoon sessions on Wednesday, June 10. The chairman of the Executive Committee of the Railroad Division, D. S. Ellis, chief mechanical officer, Chesapeake & Ohio, presided at both sessions. The program was developed by the Meetings and Papers Committee of the Railroad Division, of which W. M. Sheehan, assistant vice-president, sales, General Steel Castings Corporation, is chairman.

Mr. Eastman, who spoke at the morning session, was introduced by G. D. Brooke, president of the Chesapeake & Ohio. Mr. Stevenson, who spoke at the afternoon ses-

sion, was introduced by R. E. Woodruff, president of the Erie.

Following Mr. Eastman at the morning session, Col. James L. Walsh, chairman of the A. S. M. E. War Production Committee, delivered a short address in which he pictured vividly the magnitude of the task facing the people of the United States and pointed out specifically some directions in which engineers can be of assistance, particularly in reducing the demands for transportation. The paper on conservation was presented by A. G. Hoppe, assistant to the mechanical assistant to the chief operating office, Chicago, Milwaukee, St. Paul & Pacific. That on substitution was presented by C. B. Bryant, engineer of tests, Southern. The paper on reclamation was presented at the afternoon session. The author is G. A. Goerner, general storekeeper, Chicago, Burlington & Quincy. At the close of the formal presentations, both morning and afternoon, there was a general discussion.

Abstracts of the papers and addresses follow.

## The War, and After—A Challenge to Railroad Men

Splendid performance of roads to date based on high standards of maintenance—These must be kept up

By Joseph B. Eastman

Director, Office of Defense Transportation

**Y**ESTERDAY, I had the privilege of going to the location of the national aeronautical research laboratory, near the Cleveland airport. Part of it has been completed and the rest of it is under construction. It is being built by the government, and it will be possible in it to test, to destruction, if necessary, airplane engines of every type, and to record by mechanical instruments every phase of their operation on scores of dials around the wall which can be watched as the engines are operating.

The laboratory will also contain wind tunnels in which not only the engines but the wings can be tested and actual performance conditions duplicated. One can get the degree of density of the air and the temperature, down to 60 or 70 deg. below zero if necessary, which an airplane would experience if it reached the height of 25,000 or 30,000 ft. Everything seems to be taken into consideration and what will happen, what can be accomplished by various types of construction is recorded in the tests.

I couldn't help thinking in that connection of the rail-

roads. Of course, this experimentation which will be conducted in the new laboratory by the government and which has been conducted for some time at Langley Field, Norfolk, Va., has been a tremendous benefit to commercial aviation. It is one of the things that enables it to go forward.

There is a reason why the government spends such funds in experimentation of that kind because the government has a tremendous interest in the airplane as an instrument of destruction in war; the army, the navy, the marine corps are tremendously interested in the proper development of the airplane. And, along with that, commercial aviation gets its benefits.

But it occurs to me that the government has an interest in the railroads from the standpoint of the conduct of war operations and, in view of the tremendous amounts of money that are spent in one way or another by the government on the air carrier industry, water carrier industry, motor carrier industry, the government might be willing perhaps to devote a little money to experimentation with respect to the railroads and enable them



# Reclamation

to have a place where their instruments of transportation can be tested.

That is a thought that I had when I was co-ordinator. I didn't think of government funds in that connection, but I was interested at that time in the idea that the railroads ought to have a centralized scientific engineering research department, including perhaps a test field with a track of some mileage, where all sorts of experiments could be made in actual operation.

At one time I was rather hopeful about that project because I succeeded in getting a committee appointed. It was headed by Dr. Jewett of the Bell Laboratories. It had Dr. Kettering of General Motors, and a representative of the duPont Company, and of the United States Steel Corporation, and various other distinguished men on it. And they sat down with a committee of six railroad presidents and at length they unanimously recommended the creation of such a centralized scientific and engineering research department. But we haven't got it. I don't know what happened to it, but it is not here.

## Free Locomotives from Eccentricities

I look forward to the time when steam locomotives on the railroads will not be made to order, as a custom-tailored suit of clothes; that each railroad won't have its own particular type of eccentricities in the case of loco-

**I understand that very important discoveries in medical treatment were made during the last war, and probably will be in this war, because certain things just had to be done and they were done. Many times they proved to be good and they lasted. I have no doubt that there will be that kind of progress in aviation. I think there will be in automotive transportation, and I am hopeful that we will also have some of it in railroad transportation.**

motives and fail utterly to get any of the benefits of mass production. I hope the time will come when steam locomotives will be built somewhat in the way in which Diesel electrics are now being built by the Electro-Motive Corporation. The head of that company once told me, "We are not builders of locomotives; we are manufacturers. We make certain types and we put them

These important aspects of the materials problem were discussed at the railroad sessions of the semi-annual meeting of the A.S.M.E. at Cleveland last week—The sessions were addressed by Joseph B. Eastman and Andrew Stevenson — Large attendance of railway and supply men

in our show window and you can take them or leave them. We don't make them to order for particular railroads."

I hope the time will come when a higher degree of standardization will be attained in car construction, and even track equipment construction. I hope the time will come when the advantages and benefits of some of these various devices will be determined not by the arguments of the very attractive super-salesman, but I would like to see some of these things tested out the way they are testing them in the laboratory at the aeronautical field.

## The Stimulus of War

One advantage of war is that it provides a stimulus to scientific development. Things have to be done in war. You just can't say, "This is impossible and we can't do it; it would take too long to do it." Many times they have got to be done, particularly on the field of combat. The engineers have a wonderful record in that connection.

I understand that very important discoveries in medical treatment were made during the last war, and probably will be in this war, because certain things just had to be done and they were done. Many times they proved to be good and they lasted. I have no doubt that there will be that kind of progress in aviation. I think there will be in automotive transportation, and I am hopeful that we will also have some of it in railroad transportation.

Up to date the railroads have an excellent performance to their credit. They started in 1939 when the emergency began with the invasion of Poland. They had planned for this emergency, largely as the result of what happened during the last war. They had a centralized department in the Car Service Division of the Association of American Railroads. In addition to that they had established an effective liaison for cooperation with the shippers through the Regional Advisory Boards. They also had the benefit of the Bureau of Service of the Interstate Commerce Commission.

The cardinal principle, based on learning what not to do from the last war, was to avoid using the cars for storage purposes and to keep them in rapid circulation. And that has been done. The turn-around time of the cars has materially decreased, as you know. In 1941 the railroads carried more ton-miles than ever before in their

history and they did it with about one-third fewer cars than they had in 1929. It has been an excellent performance and, so far, there has been no congestion of any importance. Whatever the railroads have been called upon to do, whether it was movement of munitions or raw materials, or of troops and impediments, it has been done well.

### Strain on the Railroads Increases

However, the strain is getting greater. The railroads have had a tremendous load placed upon them through the diversion of freight that formerly was water borne.

**We might look forward to these strains upon the railroad service with equanimity were it possible to get cars and locomotives without any difficulty. But that is not the situation. They have to be built out of steel and other critical war materials, and the demand for those critical materials is greater than our present supply because of the immense war production program which embraces not only the armaments, munitions of war, naval vessels, but also the tremendous flotillas of ships which are being built to carry these things across to where they can be used, and also the synthetic rubber plants which have got to be built to take the place of thousands of square miles of rubber plantations which are in the hands of the enemy.**

They are carrying all the transcontinental traffic now, at a time when it is very heavy because of our war with Japan. They are carrying petroleum in tremendous quantities to the eastern seaboard in place of what used to be hardly more than a trickle by tank car. They are carrying coal in great quantities to New England to take the place, in part, of the former movement by water from Hampton Roads, and doing the same thing in connection with these lake ports. They are carrying a terrific volume of freight from the South Atlantic ports which formerly moved by water to the eastern ports. All that has been long-haul traffic and it has imposed a great strain upon the motive power as well as equipment.

Carloadings have ceased to be an accurate index of the increase in railroad traffic not only because of this increase in the length of haul, but also because the cars are being loaded more heavily. We had our General Order No. 1 which led to heavier loading in l. c. l. cars and it was interesting to note that just about the time that went into effect the carloadings began to show a dip. But more l. c. l. freight is now being handled, with a saving of about 40 per cent in cars compared with the same time last year. Although a small percentage of tonnage, l. c. l. freight, I understand, took as much as 20 per cent of the car supply.

For all of those reasons the carloadings have ceased to be an accurate index. Ton-miles are a better index and they are increasing at more than double the rate of the carloadings. Ahead we have what the forecasters say will be a continual increase in general growth of traffic, and we have the possibility that there will be diversions from trucks because no more trucks are being built. In view of the rubber shortage, it is uncertain

how long those that are in existence can be maintained in service.

We might look forward to these strains upon the railroad service with equanimity, were it possible to get cars and locomotives without any difficulty. But that is not the situation. They have to be built out of steel and other critical war materials, and the demand for those critical materials is greater than our present supply because of the immense war production program which embraces not only the armaments, munitions of war, naval vessels, but also the tremendous flotillas of ships which are being built to carry these things across to where they can be used, and also the synthetic rubber plants which have got to be built to take the place of thousands of square miles of rubber plantations which are in the hands of the enemy.

On account of all those demands upon critical materials, the War Production Board naturally is disposed to look with reluctance on allotting steel for the construction of cars and locomotives. They haven't allotted as much steel for that purpose as I wish they had. They are relying in that connection upon what they believe to be the capacity of the railroad industry, and I mean by capacity its mental capacity, and upon its reserve strength and ability to take up slack.

That is a challenge to the railroad industry and I know that the railroad industry will do everything in its power to meet it. A great deal depends upon their imagination of the mechanical engineers, on their powers of improvisation and ability to act quickly.

Conservation, reclamation, substitution are three fine topics to consider at this time. Out of the practical experience you are going to have with those matters by virtue of necessity, I am inclined to think that you will discover things which will be of great value later on when normal times arrive.

### Other Agencies Have Already Faced Major Material Substitutions

In the matter of substitution, the buses had to face the question of getting rid of light-weight materials like aluminum over a year ago, making substitutions, and changing the design all over. A shortage of repair parts for automobiles is now imminent. Many parts require alloys which are very scarce, and work is going forward on a program of substitution for critical materials in the repair parts.

We have had before us the question of increasing the number of barges on the inland and intra-coastal waterways. The barges have been made of steel; the tow boats have been made of steel. That can't be procured, and now the suggestion is that the barges be made of wood. Not only that, Diesel engines used for the propulsion of tow boats are scarce. That has brought about a study of what other kinds of engines can be used. A great deal of research is being done by engineers in connection with the waterways.

Two things I should like to mention particularly. I asked Phillip Hollar, head of my section on materials and equipment, if there was anything he would like to have me say to you and he said, "I wish you would call their attention to the field of scrap." I said, "I thought that field had been combed over again and again in the last two years, and the railroads had collected all the scrap there was." He said, "I think there is still some you can find around the shops, for instance, old rails which you had used for steel posts and enclosures." He said, "If they look carefully over the situation in all the shops, they will still find quite a little scrap which it is possible to reclaim."



The other thing to which I want to call your particular attention is the question of maintenance. One reason why the railroads have done as well as they have done—and that has been excellent so far—is because they have been able to keep their equipment in good repair. They have reduced the percentage of bad-order cars and locomotives down to the lowest percentage on record. They have got to keep that up, in view of the fact that they are not going to have an abundance of new locomotives and cars, if they are going to maintain their performance. That makes the maintenance question of supreme importance.

I was considerably worried when I heard that there was a possibility that the War Production Board might in the latter part of this year shut down the supply of maintenance materials in whole or in part. I hope you will watch that matter very closely, and if you see any danger in sight, let us know in Washington at once. I can't conceive of anything that is more critical and more important than keeping this equipment that the railroads have in topnotch condition. Of course, you ought to use all the devices you can through reclamation and substitution and conservation to make the supplies you have go as far as possible.

The motive power, particularly, as well as the cars, is under a terrific strain at the present time. It worries me a little when I think of these old tank cars which have been brought out of retirement and are being operated at great speeds across the country, whether or not they are going to stand up under the strain. There has seemed recently to be an increase in railroad accidents rising above the increase in traffic, and that looks like a danger signal. I hope you will watch that very closely indeed, and if you see signs that point to danger ahead, please let us know as soon as possible, because we want

to follow that up with the utmost energy that we can.

Looking into the future, when the war is over, beyond doubt the railroads are going to have greatly increased competition from the air carriers, because of the construction of these tremendous bomber planes in enormous quantities; because of the research that is going into them; because of the plants which will be available for their construction; because of the prices at which they probably can be obtained for commercial use. Certain air-carrier companies are working hard right now on going into the field of carrying freight to a much greater extent than ever before. You will have the motor carriers with you, too. You will have the waterways. I am not a partisan of railroads or any other form of transportation. I am the father confessor of them all. And I am not going to make a plea for any particular one of them.

The railroads are now the backbone of the transportation industry without any question. I think they will remain so, but it is going to be necessary for the managements to keep on their toes, to keep the fires of imagination and creative ability blazing all the time if they are going to keep up with the procession.

I recall some famous character who, speaking of his enemies, said something like this: "If you can't lick them, join them." And that might be something to think of in connection with the motor carriers and the air carriers. Already you have found you can use the motor truck to great advantage in railroad operations. It is being used extensively, and you may be able to do more. You may be able to do it in the case of the airplane as well.

In the meantime, I know that the railroads are going to work with the shippers, and with each other, and with other forms of carriers, and with the government, to keep everything rolling for the utter confusion and defeat of our enemies.

## Conserve Materials By Using Less

Engineers in railroad industry have it in their power to save by designing for lighter weight and helping industry reduce bulk in packaging

By Colonel James L. Walsh

Chairman, War Production Committee, American Society of Mechanical Engineers

**Y**OU have heard the expression recently that this is a quartermaster's war. I suppose that the word "quartermaster" was used largely in a sense of supply because the quartermaster doesn't have to do with all kinds of supplies any more. He doesn't even have to do with moving all kinds of supplies as he did until recently. The movement of supplies has become so very important that an entirely new corps has been established in the army called the Transportation Corps.

### The Magnitude of Our Job

With the recent request by the President for an additional 39 billion dollars for the fiscal year which begins in a few days, it would indicate that during the next 12 months, beginning July 1, there will be an activity of one kind or another related to the war, represented by a total of 110 billion dollars. The Panama Canal took 10 years to build. Roughly, what we are tackling beginning July 1 is a job equivalent to the building of 300 Panama Canals in one year; that's not very far from one

a day. The Empire State Building is 102 stories high. It's equivalent to building 2,200 Empire State Buildings in a single year!

That's just the overall measurement, just taking money as the least common denominator to show what we are facing, the first of July; what Mr. Eastman is facing, utilizing all the transportation available. And if you think it's going to be easy to do that, you're going to be very sadly mistaken. It can be licked, but it's not going to be licked by letting Eastman do it. It's going to be licked because you and I, wherever we happen to be, lend a hand in licking it.

### Ships—And More Ships!

One thing we ought to bear in mind as a very essential factor in this situation is that eventually we will have to lick the Japs, no matter what we do first. To lick them, we have got a seaborne line that will average 12,000 miles. At present, the Japs have a seaborne line of communication of around 1,500 miles. That, if my arith-

metic serves me rightly, is a ratio of 8 to 1. The number of ships required is determined by the relative length of the lines of communication. So, roughly, we have got to outbuild the Japs 8 for 1, in order to get an even break.

You can read the papers of the number of ships we are launching, and the number of ships that the Germans are sinking. I won't go into the exact details on that, but there certainly isn't very much net gain. In fact in some weeks there has been a definite loss; they are sinking more ships than we are able to launch. On top of that, they are building submarines faster than we are sinking submarines.

These things may have little to do with the railroad industry, but it seems to me if you get a proper background of this situation, you can get the feel of the things that are coming, the load that is going to be on the neck of the railroad industry, because that, at present, is the only industry that we can count on logistically—moving materials to the fighting fronts.

### Modern Concept of Logistics

I looked up this word "logistics" and it said in one dictionary, "the science of supplying armed forces in the field." I think that is about as up-to-date as saying that war is a duel between professional armies. To the civilians that have been killed all over the world, certainly that is not their understanding of war, as a duel between professional armies. That is no longer the case.

War now-a-days is between entire nations with every soul in them, and groups of nations. It covers every individual man, woman and child from the maternity hospital to the verge of the grave. It catches the churches, and the schools, and the homes, as well as the factories and the forts. We are all in it, in the army now. We are all targets, as a matter of fact.

Due to the fact that transportation is necessary, that food and other equipment is necessary to maintain the civilian populations of the United Nations in order to keep them in the war on our side, that is also a military function. So that eventually we come down to the conclusion—it seems to me it is inescapable—that we are facing for survival one single completely integrated, highly complicated problem in logistics, to keep the United Nations and their civilian populations alive; to keep their forces in the fight until we can arm, equip and transport armed forces to where they can be effective.

That leads to another thought. There isn't one thing that we do from the time we get up in the morning until we go to bed at night, not any of us, but has its effect either for plus or minus on the outcome of the war. You can figure these things through, and you can see their effect.

You take the sugar in your coffee as an example. We Americans are prone to put a spoonful in, and put a little more in; down goes the coffee, then look in the cup, and half the sugar is still in there. What effect has that on the war? It would take a fifth of an acre of sugarcane to produce the alcohol necessary to produce the powder to fire a single round in the jungle, perhaps in Corregidor. That's the interconnection between these events. That's the thing we can do.

Here we are in a hotel. They put plenty of nice towels around, and we use one, and throw it aside; and then we use another one, and throw that aside. It's all included in the price. And we leave a few lights on. There's not enough chlorine available today even to experiment with making decontaminants against mustard gas. And this chlorine can come only out of things like

either the purification of water supply or the bleaches the laundry and textile people use.

We need that chlorine, so just as a tip for the future, don't be too careless with your towels, either at home or in the hotel. They are all interconnected, every one of them, and I think you've got the sense to see that interconnection.

### Cut Down the Bulk

Now, why am I talking about this? I want you to help Joe Eastman. You can help him in your design,

**To think of the materials and manpower needed to build 300 Panama Canals, or 2,200 Empire State Buildings in one year would give a fair idea of the immensity of our 110-billion-dollar war program. In every move from mine to mill and to the men on the fighting front transportation plays a major role. If the engineers of the industry will wage a war against weight and bulk the result will be just as important as the building of so many ships or cars for it makes possible the greater utilization of what we have now—when we need it most.**

your material, your apparatus, your machines. You engineers can help by designing nearer to a factor of safety of unity, as we have to do in the army, in order to cut down on weight. Why do we engineers use factors of safety of three, four or five if it is not necessary—just mental laziness? We are in a serious situation now in which we can no more afford to over-estimate than we can to under-estimate. Take the small matter of packages. The forest products laboratories in Wisconsin developed a crate for shipping automotive engines abroad, and they cut down the bulk by 15 or 16 per cent. Now what does that mean in the logistic sense? It means that out there in Wisconsin they were building ships, didn't it? They cut down the bulk so that five ships would do the work of six, bulk being the determining factor. Do you know of any quicker way to build ships? Do you know of any way to pay for them more easily than not to have to have them to do the same job?

Now there are plenty of those things right under our noses. We have been criminally wasteful, and we are going to pay for it, not with money, maybe, but with our lives.

### Be Safe and Save Transportation

Even children have got to get the sense that everything they do and don't do has an effect on the war. Little Willie leaves his roller skates on the front walk. Tell him he's helping Hitler. The mailman or somebody else comes along and falls and konks his head. First you telephone, and waste communication, of which we haven't enough. And you've got to have a doctor attend to him. We haven't got enough doctors today. Fundamentally the reason Willie is helping Hitler is because you have to get an ambulance to haul the man to the hospital. You have to use surgical tools, perhaps, and we don't have enough chromium to plate them. And we can't afford to use the rubber and the tires and the ambulance to cart anybody away.



If you think that is a small item, let's just figure it up. Traffic deaths in any nineteen-month period—you can take back up to this last month—show around 40,000 killed by automobiles. We killed only 39,000 in 19 months of the World War by bayonet, bomb, shrapnel, and everything else. The automobile has been killing off regularly, month after month, the same high average we lost during the World War. We can afford to do without that sort of thing.

But even in your own home, at the same time we are losing 40,000 on the highways, we are losing 102,000 needlessly at home—people slipping on the soap in the bathtub, or on the milk bottle on the back stairs. You can't afford that kind of luxury any more, and why? Because it absorbs transportation. That's the fundamental reason, that transportation is needed to support the boys wherever they may be. You know it just as

well as I do, and every mile they go, it takes more and more transportation to supply them.

### A War on Weight

So, if you engineers will focus on a war on weight in the design of apparatus, gadgets, and so forth; cut down the bulk of your packages; cut down anything.

In 1935 they started building some standard freight cars that were six tons less in weight than the usual design. What would that have meant today if it had been followed through? Six tons per car unnecessarily lugged over the Continental Divide, 85 cars to the train. Figure that out. Think what that saving would have meant.

The solution of this problem is right in your hands, and I think you can solve it.

## Protecting Material Supplies by Conservation

A careful study of practices not considered wasteful when material was plentiful will disclose sources of supply for our present needs

By A. G. Hoppe

Assistant to the mechanical assistant to the chief operating officer, Chicago, Milwaukee, St. Paul & Pacific

**P**RACTICALLY all materials that we deal with in our every-day work are critical to some degree. Some have been denied us altogether and we have had to resort to substitutes. In many cases we are already using substitutes for the substitutes, since a wholesale substitution of one material for another invariably causes the substitute to become critical. This cannot go on forever and we come rather abruptly to the proposition of making the best possible use of the materials we will be allowed to purchase.

A railroad repair shop carries on a diversified line of work and hence it is impossible in most instances to buy material to suit the job. The material is bought in bulk and has to be cut to fit the job. This applies to many different commodities such as steel sheets, plates, billets, bars and shapes; brass and copper sheets; rubber and composition packing; textiles, leather goods, and so on. Because of this method the layout men in the shops are in a key position and must be impressed with the importance of their part in the matter of conservation. Unless the layout man thinks first and plans his work so as to use as little material as possible, he can cause an untold amount of waste.

The engineering department can be of considerable assistance. A specific instance of this is found in the general employment of fabricated parts as substitutes for steel castings, which are assembled by welding. If the designer will use as few different thicknesses of material as possible, the layout man has a better opportunity to utilize his material to the best advantage. In this type of work bosses, gussets, and braces are commonly employed and the layout man will be able to fit these small parts between the larger portions. If necessary, shearing diagrams should be prepared. Complicated contours are often encountered in the design of a substitute for a steel casting, particularly if an attempt is made to reduce the welding to a minimum. However, by the judicious use of welds in strategic places, almost any complicated piece can be reduced to simple components which can be

cut from a sheet or plate with little or no waste, whereas the cutting of the complete piece would result in considerable waste.

This procedure may not always be the most economical from the standpoint of labor or convenience, but our present purpose is to save material, and convenience and cost become secondary matters. We may also have to revise our ideas of housekeeping slightly and permit the accumulation of small pieces of material ordinarily scrapped for use as clips, gussets, bosses, etc.

### Material Used Prodiggally to Save Labor

I believe it will be admitted that we in America have been very prodigal in the use of materials in our attempt to effect labor savings. To assist us in these efforts the machine-tool designers have placed machines at our disposal capable of removing large amounts of material in a minimum of time. The manufacturers of flame cutting equipment have produced devices which will permit of making complicated parts, as it were, out of the whole cloth from plates or billets, eliminating the necessity of forging. The aim has been the production of a given part at the lowest overall cost, even though in some instances, 50 per cent or more of the original material was cut off in the process.

In this respect the machine tools are the greatest offenders in that they make chips or shavings out of the material removed, and such waste is at best only rather poor melting scrap. Specific examples of this are locomotive valve stems, frame splice bolts, and similar turned objects. Where work of this type is of sufficient volume it can, no doubt, be shown that it is cheaper to machine out of bar stock than it is to forge down the smaller diameters or upset heads, etc., and set the pieces up individually for machining.

The flame cutting devices are not quite as wasteful, as here a clever operator can save considerable material by properly planning his work. Furthermore, the ma-

terial which does fall off as unusable scrap has a higher value. However, the entire picture has changed with respect to saving labor at the expense of materials. In fact, the present situation is such that unless we save material on which to use the labor, we won't have any material on which to save the labor.

### Back to the Forge Shop

Undoubtedly the answer to the above is a return to more intensive use of the forge shop. In the case of the valve stems mentioned above, our engineering department made up a compromise forging from which it is possible to machine the valve stems used on any of our locomotives. The weight of this forging is only slightly more than half of the weight of the bar required to produce a valve stem by machining only, and in this case there was very little, if any, difference in the labor cost to forge and machine.

Similarly, in the production of larger forgings the part can be roughed out under a steam hammer and then finished more nearly to size with the torch at a considerable saving in material.

The matter of keeping down store stock, influenced also by convenience for the shop, has led us in many instances to try to make one rough part serve too many purposes. An illustration of this is the use of heavy-walled bronze bushings to serve as rough stock for a considerable number of finished bushings. Here again, machine tools can cut off material in a hurry, and it is convenient for the shop to set up a long, heavy-walled rough casting, and proceed to make almost an infinite variety of finished bushings. No doubt, by this procedure the stores department can protect a given number of articles with less total stock than would be necessary if each article were made from a separate pattern with a minimum allowance for finish. Our purchasing agent has been calling attention to this matter for many years pointing to the high ratio of bronze borings sold to the brass manufacturer, to the total bronze purchased. Apparently it took nothing less than a war to make us see the light.

### Replacement Parts Have Been Too Readily Available

In our efforts to save labor or time, we have made replacement parts too readily available. No doubt, in many cases it is cheaper or takes less labor to remove a given part by destroying it and applying a new piece. Sometimes this procedure is again purely a matter of convenience. Bolts, nuts, pipe and pipe fittings undoubtedly suffer most from this practice. The judicious use of wrenches will save much of this type of material. If necessary, cutting torches may have to be kept under lock and key and used only as a last resort and then with the approval of a supervisor. One of our shop supervisors at a recent meeting gave us an antidote for this practice when he said, "Make it hard to get." If we do make it harder to get new parts, the workmen and supervisors will think twice before removing a part by destroying it.

Similarly, parts are often renewed when a little ingenuity will keep them in service. Sometimes we may have to resort to methods considered questionable, but if the practice is safe and does not violate any regulations, it is certainly justifiable under present conditions. A case in point is the matter of loose driving-box brasses which in many instances can be tightened by the use of shims and rendered fit for further use. The rules for the inspection of steam locomotives recognize this prac-

tice and permit shimming of driving-box brasses provided only one thickness of shim is used.

In our efforts to keep existing parts in service as long as possible, full advantage should be taken of established limits of wear. This applies particularly to parts governed by regulations of either the Interstate Commerce Commission or the Association of American Railroads. Some of the railroads in an effort to avoid conflict with such limits have applied somewhat more stringent regulations to govern their own practices. The limits established by the above agencies undoubtedly are considered safe and more stringent limits are not justifiable under

**We in America have been very prodigal in the use of materials in our attempt to effect labor savings. To assist us in these efforts the machine-tool designers have placed machines at our disposal capable of removing large amounts of material in a minimum of time. The aim has been the production of a given part at the lowest overall cost, even though in some instances 50 per cent or more of the original material was cut off in the process.**

present conditions. Car wheels and locomotive tires are important examples of parts subject to such regulation, and every effort must be made to keep such parts in service as long as possible.

### Grinding Car-Wheel Treads

An invaluable aid in the conservation of tread metal on car wheels is a suitable wheel grinder. The Committee on Wheels of the Association of American Railroads has long recommended the use of wheel grinders for grinding our flat spots on chilled-iron wheels for further use in interchange, and permits the use of chilled-iron wheels trued up because of out-of-round condition on the owner's cars.

Grinding is also advantageously used on wrought-steel wheels to remove built-up treads, and to restore worn treads in the absence of excessive flange wear. The latter is particularly applicable to wheels used in high-speed service where excessive tread wear cannot be permitted, and in most instances a tread can be dressed up several times before the height of the flange approaches the condemning limit. The advantage of grinding obviously is in the fact that only sufficient tread metal is removed to true up the wheel and restore the tread contour. When this is done by turning, it invariably results in a definite loss of at least  $\frac{1}{16}$  in. of tread metal since a cut of less than this is not practicable.

### Non-Metallic Materials

So far we have discussed almost entirely metallic materials. Some of the non-metallic materials, while not used so extensively, are none-the-less equally important, and equally or more critical. Rubber apparently is, for the time being, unobtainable. From a purely conservation standpoint we can only impress on every one to take care of, save, and protect what rubber they now have, as it must last a long time. We can only point out that rubber products such as air, tool and welding hose, welder and battery-charging cables, etc., should be protected from mechanical damage and kept from contact



with oil and grease. The length of such connectors should be kept at a minimum and any excess material saved for future use. This may require the installation of additional air or power outlets but this would certainly be justified.

Proper care and maintenance of equipment certainly bears a definite relationship to conservation of material. Proper lubrication of motors and shop machinery will prolong the life of shafts and bearings. Keeping electric motors clean and free from dust contributes to better operation and longer life of the windings. Ninety per cent of all motor failures are due to excessive bearing wear which in time permits contact between the armature and field pieces. Periodical gaging of the air gap will show when bearing renewals are necessary. An example of what such gaging will do will be found in one of our grain elevators where the insurance company insists on this practice and for 10 years we have had no motor failures from armature and field contact.

Electrical control equipment, switch contacts, insulators, etc., if periodically cleaned will function better and longer. We are prone to forget transformers because they give so little trouble, but if ever they needed care with proper renovation of the cooling oil, now is the time. The Electrical Section of the Association of American Railroads has outlined an excellent procedure of maintenance for motors, controls, and other electrical equipment which, if followed, should prevent expensive failures.

Lubricants are becoming more and more critical. The fats used for making greases may soon be restricted to such an extent that little or none will be available for grease manufacture. Grease can be easily wasted and should be used with judgment, particularly when applied with pressure guns. There is no need in these times to ballast the right of way or plaster the bottom of the running board, the boiler, and the driving-wheel centers of a locomotive with rod grease. The special Diesel oils are already practically unobtainable. What oil is avail-

**All railroads have tools and tool steel on their property that they are not aware of. If you have not already done so, a good housecleaning of all lockers, corners, bench drawers, covered pipe trenches, and similar pits, in fact any ledge or shelf capable of supporting anything, is in order and will undoubtedly uncover a lot of tools and tool steel, some of which will be of the high speed varieties which cannot now be purchased.**

able should be used as long as practicable, and proper laboratory control of the oil in use will logically determine when renewal is necessary. While this may make subsequent reclamation somewhat more difficult, it does not render it impossible.

### Tool Steels

The high-speed varieties of tool steel are in the same class with rubber. All railroads have tools and tool steel on their property that they are not aware of. If you have not already done so, a good house-cleaning of all lockers, corners, bench drawers, covered pipe trenches, and similar pits, in fact any ledge or shelf capable of supporting anything, is in order and will undoubtedly un-

cover a lot of surprising things among which will be a lot of tools and tool steel, some of which will be of the high speed varieties which cannot now be purchased. There is no longer any justification for tools made of solid high-speed steel. If the various types of bit holders are not applicable, suitable large planer and lathe tools can be made by cementing a high-speed cutting edge to a piece of 1045 steel using powdered 1045 steel as cementing agent.

The conservation of material involves, in addition to proper use, the proper protection and care in handling. It seems unnecessary to touch on this but I'm quite sure all railroads have been guilty of failure properly to protect steel in storage, and have also failed to provide proper storage conditions for other vital materials. It seems we sometimes go out of our way to store rubber goods, tool handles, switch brooms, etc., in nice dry sunny places, and paper containers in damp places. While the engineering or mechanical departments are not primarily responsible they should at least call the matter to the attention of the proper individuals. A somewhat similar situation exists with respect to handling of materials in loading from or loading into cars. While some materials are apparently strong and far from fragile, as for example locomotive tires, they should not be tossed into a pile indiscriminately with resultant nicks which may eventually cause the part to fail in service.

### Check Stores Stocks for Obsolete Items

So far the discussion has been purely from the standpoint of the railroads making the best possible use of available materials for the operation of the railroad. It seems to me, however, that we should look beyond the immediate need of the railroads proper. A careful check of material in store stock, particularly steel castings, will show that there are certain items which, because of obsolescence or other reasons, will never be used and cannot be altered to make them usable. Such material is of no earthly use to the railroad and should certainly be released, through sale as scrap, for use in the war effort.

This discussion applies, of course, to all usable material whether new or second-hand. A steel plate which has been used on a bridge or car, but is still in good shape, should be treated in the same manner as a new plate and used with equal economy. Structural steel recovered from dismantled cars can be used in kind for many purposes. Practically all of the large jibs used in our car shop have been made from old center and side sills. Two small gantry cranes and a small transfer table for Diesel locomotive maintenance have been built exclusively from old car sills. While portions of such sills may have suffered from corrosion the balance can be utilized by cutting angles from channels and tees from I-beams.

### Scrap Axles As Forging Billets

Scrap car axles can be used for a variety of forgings which permit carbon from 0.35 to 0.50 per cent. Among such items are draft-gear keys and follower plates. Locomotive axles not fit for further use in kind also make excellent forging billets for many purposes. Steel castings have replaced numerous simple forgings for locomotives. The present demand for steel castings for defense practically stops this practice and it will be necessary to return to forgings for many purposes. Engine-truck axles can be forged down to round bars for use as piston rods, wrist pins, small crank pins, crank-pin collars, etc.

This may appear to some to be questionable practice.

However, all axles should be checked with the Magnaflux for cracks before attempting further use, and cracked portions cropped off. Furthermore, the heating and working disclose defects which may be missed by the

Magnaflux. It appears far better to use a part carefully made from a second-hand axle than to keep a locomotive or car out of service for want of an important forging.

## Substitution—A Constantly Changing Picture

"Is it available" and "will it work" are questions facing the railroads—Finding substitutes for substitutes—Help of all groups needed

By C. B. Bryant

Engineer of Tests, Southern

**D**URING the past ten years, railroads have been substituting economical materials and operations for more costly materials and operations, and have been making a good job of it. In this new day of changed operating conditions many of the old rules of practice must be revised. Instead of "can we afford it" or "how much will it save," we are now learning to substitute "is it available" and "can it be made to fulfill the function of what we have been using." We are still substituting for what we do not have—during the thirties we were substituting for money, now we are substituting for materials.

Railroading is fundamentally an operating industry, using materials and equipment, with which we must live for many years after we have acquired them. For the manufacturer, once a change is decided on and the shift in production is made, the problem is largely settled. In railroading, however, the answers to design and manufacturing problems must first be found, and then the maintenance and operation problems must also be solved.

### Substitutes Are Being Found

No one person or organization can, or is attempting to claim credit for complete originality and independent thought in this work. On the contrary, the progress we have made and are expecting to make in the near future is built on a splendid cooperation between different individuals and different organizations and the development of constructive suggestions and ideas received from any source. Much of this information is already available in the minutes of various committee meetings and new standards of materials and designs adopted by the A. A. R., A. S. T. M. and War Production Board technical committees. Consequently, what I tell you is really only a summary of the actions given from my point of view. I shall not attempt to limit the items mentioned to those falling within the mechanical field of railroad operations but shall cover operations in general.

### How Scarce Is Copper?

Last December, when the impact of actual war first struck us, we had already the advance knowledge that many materials were going to be scarce. Aluminum and some other metals had already disappeared from railroad uses but such uses were relatively minor and the full realization of what we were facing in the way of substitution had not yet developed. The first scarcity which hit home to railroad operations was that of copper on which railroads depend for many important operations,

although the total tonnage consumed is not large. The necessity of not only reducing our purchases of copper and copper alloys but the probable necessity of releasing large quantities of copper alloys already in service on the American railroads to other industries was the first great problem which the railroads faced.

The largest single item of copper used by the railroads is in car journal bearings, of which there are an estimated 20 million in service, containing in round figures 170,000 tons of copper. These bearings when worn out are not destroyed but are remelted and remanufactured to an estimated extent of about 25 per cent of the total number each year. If while performing such remelting and remanufacturing we could release copper to other users or if we could reduce or eliminate our requirements for make-up material to replace that actually worn away in service and lost in foundry operations, we would then be contributing to relieving the shortage of copper to that extent. We were told by the War Production Board that, while the total amount of new copper to be made available in 1942 would be approximately 45 per cent more than in 1941, the increased essential demands for military uses only would require all of the production increase and also a considerable proportion that would otherwise go into ordinary civilian uses.

### New Bearing Designs

During January of this year the A. A. R. adopted new compositions for the bronze backs of car journal bearings, reducing the maximum copper content permissible by approximately eight per cent. There was also adopted a revised and lightened design for bearings, resulting in the saving of approximately five per cent of the amount of bronze used per bearing. At that time a new Committee on Journal Bearing Development was set up which immediately instituted an extensive research program looking toward further reduction in use of critical metals. This committee has been functioning in an extremely energetic way and during May, as the result of the research work which it had been conducting, it offered a further modification in journal bearing design resulting in the saving of an additional 12 per cent of bronze. There are many possibilities of further savings not only in further changes in design but in the substitution of other metals in whole or in part for bronze. I am hopeful that within the next few months there may be other similarly constructive actions derived from this work.

The entire field of railroad uses of copper and copper alloys has been studied and restudied. In shoes and wedges for locomotive driving boxes, malleable-iron faced



with bronze bearing surfaces can be substituted for the solid bronze castings heretofore used. This substitution will not result in any ultimate reduction in the use of bronze but it will make available for other necessary uses a considerable tonnage of bronze now in service. Grey iron bushings can be substituted for bronze in certain classes of power with probability of shorter life and increased cost but with the necessary saving of non-ferrous metal. Economical long-life copper pipe and tubing is being replaced with steel and wrought iron.

In the field of locomotive driving-axle bearings substitution of higher lead content bronzes for those now being used is made possible by casting such bearings in metal or "chill" molds instead of sand molds with resultant reduction in quantity of tin and copper requirements.

With respect to air-brake parts a special A. A. R. committee appointed to study that subject has reported the possibility of replacing 34 per cent of the brass now being used by other non-critical metals.

### Substituting for Tin

When the great bulk of the world's tin supply coming from the Far East was cut off, the tin situation suddenly became even more critical than the copper. The first action taken to meet this situation was a revision in A. A. R. requirements for soft-babbitt journal-bearing lining metal, in which tin constituted about  $4\frac{1}{2}$  per cent, by which the tin content was reduced to a maximum of 3 per cent. The thickness of the journal-bearing lining metal was reduced first from  $\frac{1}{4}$  in. to  $\frac{3}{16}$  in. and subsequently in May again reduced to  $\frac{1}{8}$  in., the changes in design and composition together accomplishing a saving in tin approximately 75 per cent of the amount previously used. It is not easy to make such sweeping

**No one person or organization can, or is attempting to claim credit for complete originality and independent thought in this work. On the contrary, the progress we have made and are expecting to make in the near future is built on a splendid co-operation between different individuals and different organizations and the development of constructive suggestions and ideas received from any source. Much of this information is already available in the minutes of various committee meetings and new standards of materials and designs adopted by the A. A. R., A. S. T. M., and War Production Board technical committees.**

changes as these and they must, of course, be made only with the certainty that railroad operation will not be rendered unsafe or undependable. These changes and others to be mentioned later have not been made with any idea that they will result in operating economy. In some cases we know that costs may be materially increased. They have been adopted as a means of carrying us through the period of war scarcities when it is and will continue to be impossible to secure materials to operate on the same basis as previously.

Other types of tin-bearing metals have also been affected by the tin situation. Recent W. P. B. orders have placed severe restrictions on the percentage of tin

that can be used in all such mixtures and this action has intensified the interest of users in various low-tin specialty mixtures that have been developed for bearing metals. Some of these substitutes have been used sufficiently to warrant greater attention. An alloy consisting of 98 per cent lead hardened with calcium and about one per cent tin has been widely and successfully used in Diesel-engine bearings and to some extent in railroad car journal bearings. Its use in interchange freight car service has been approved by the A. A. R. Another specialty bearing metal consists of less than one per cent

**The entire field of railroad uses of copper and copper alloys has been studied and restudied. In shoes and wedges for locomotive driving boxes malleable-iron faced with bronze bearing surfaces can be substituted for the solid bronze castings heretofore used. Grey-iron bushings can be substituted for bronze in certain classes of power with probability of shorter life and increased cost but with the necessary saving of non-ferrous metal. Economical long-life copper pipe and tubing is being replaced with steel and wrought iron.**

tin with antimony and arsenic as hardeners in a lead base. This alloy is being investigated in connection with its possible use in car journal bearings but the results are not yet available.

In the field of solder, tin is being replaced by other metals, including silver. Tests which have been made on my own railroad show good possibilities for such solders but indicate the necessity for material revision in shop practices in order to use them.

### Alloy Steels Affected

Railroads have not been large users of alloy-steel forgings but a considerable number of locomotives are now operating which were designed around certain alloy steels. With the gradual and now virtually complete disappearance of alloys from railroad uses, including nickel, chromium, vanadium and the probable elimination of molybdenum, together with the necessity for sharply reducing manganese use, the problem of maintaining these alloy-steel locomotives has become acute and difficult. The substitution of carbon steel for nickel-alloy boiler plates in locomotives designed for the latter necessitates reduction in working pressures, increase in weight, or both, with consequent reduced transportation efficiency for such units. Locomotives designed with light-weight alloy-steel reciprocating parts require extensive rebuilding when heavier carbon steel parts of equivalent strength are substituted.

In such cases, restrictions in maximum permissible speeds are necessary. Intensive studies are being made looking toward the possible substitution of quenched and tempered carbon-steel forgings for alloy steel and preliminary experience of those roads which are facing this problem indicates that the reduced efficiency and capacity of the locomotives may not be as serious as was first feared. Fortunately, this difficult situation does not apply generally to the great bulk of steam locomotives now in service on the American railroads but it is nevertheless a very serious situation for those railroads that operate the engines in question and, in view of the pres-

ent extreme demands for power, it is serious to the railroad transportation picture as a whole.

In certain classes of carbon-steel forgings, particularly those subject to high stresses, it has been necessary to use aluminum as a deoxidizer in making the steel in order to produce the fine-grained micro-structure considered essential for this class of service. Aluminum has not been available for this use and so far no satisfactory and available substitute has been found. This situation is receiving intensive study. Information just received from the W. P. B. states that it will probably be able to authorize sufficient aluminum for this purpose.

#### Bessemer Replaces Open Hearth

In the field of freight-car construction Bessemer steel has been accepted as a substitute for open-hearth steel in certain car structural parts and to this extent the productive capacity of open-hearth steel has been released for military uses. Under the allocation plan of the War Production Board certain steel mills are operating almost entirely on a basis of specifications for ship-building plates and in many instances plates to that specification have been used in car construction instead of the usual structural grades of steel. We do not anticipate any disadvantages in service because of these substitutions.

#### Welding Adds to Life of Parts

In both mechanical and maintenance-of-way equipment the growing utilization of welding as a substitute for the replacement of worn parts has been greatly stimulated and expanded, although we may reach a limit to which these operations can be used because of the necessary alloying constituents of the welding electrodes and rods. One of the large applications of welding in this manner is with respect to cast manganese-steel frogs and crossings. Whereas such items when worn out were formerly scrapped and new ones purchased to replace them, it now appears that due to restrictions on manganese the production of such manganese-steel castings will be greatly reduced or perhaps entirely eliminated for railroad uses. It is fortunate that the economy lessons of the depression during which we learned to prolong the life of such manganese track fixtures by building up worn spots through welding have already taught us the technique of this operation and we hope to further prolong the life of such items during the present emergency.

In view of the anticipated reduction or cessation in the manufacture of such manganese-steel fixtures, we are actively experimenting at the present time with the heat treatment of ordinary rail steel, from which substitute frogs and crossings can be constructed. Several methods of heat treatment are available, including various quenching treatments, such as ordinary oil-bath quenching and molten-lead-bath treatments. A new development in flame hardening of the wearing surface of rail steel is also being studied and appears very promising.

#### Rubber

The next great scarcity which faced us was that of rubber, with which everyone is already familiar. Railroads are large users of rubber hose and the Mechanical Division of the A. A. R. has agreed upon a series of emergency rubber-hose specifications which will materially help conserve the dwindling stock pile of crude rubber which was on hand in this country at the time of the fall of Singapore. These changes largely contem-

plate the substitution of new rubber by reclaimed rubber. They result in inferior hose with anticipated life probably less than half that we have been securing in the past.

It is hardly necessary to mention the care with which such changes must be considered, particularly in certain grades of hose, such as air-brake hose, where failure is likely to result in serious accidents. We believe we have adequately safeguarded this phase of the matter and that the substitute hose will be no more likely to sudden failure than that previously manufactured. These modifications in rubber are not only uneconomical at the present

**Intensive studies are being made looking toward the possible substitution of quenched and tempered carbon-steel forgings for alloy steel and preliminary experience of those roads which are facing this problem indicates that the reduced efficiency and capacity of the locomotives may not be as serious as was first feared. In certain classes of carbon-steel forgings, it has been necessary to use aluminum as a deoxidizer in making the steel in order to produce the fine-grained micro-structure considered essential for this class of service. Information just received from the WPB states that it will probably be able to authorize sufficient aluminum for this purpose.**

but will doubtless ultimately result in increased demands for rubber due to the shortened life of the emergency products. The changes have been made necessary notwithstanding these disadvantages, however, because of the absolute necessity of continuing operations until such time as synthetic substitutes for rubber may be available to us several years hence.

We are studying the use of spliced short lengths of worn-out hose to build up long sections where normally new hose would be provided and we also are considering the use of flexible metallic connectors of various types for certain applications where rubber hose is more desirable.

Railroads use rubber in a large variety of miscellaneous applications, all of which were carefully studied by a special committee on rubber conservation appointed by the A. A. R. at the beginning of the war. Last January this committee issued its first recommendation, which listed 66 specific applications of rubber for which other materials can be substituted and made definite recommendations for the material to be used in the replacement of each item. For 40 other items no definite substitute could be immediately suggested and intensive study is being given these in cooperation with manufacturers with the expectation that in many cases the rubber can be eliminated or its use greatly reduced.

#### Changing Paint Specifications

In the field of paints the railroad specification writer has faced the necessity of making changes in formulations which have been developed in the past, because certain materials are no longer available. Outstanding among these is China-wood oil, a most valuable ingredient for manufacturing high-grade freight-car finishes. China-wood oil possesses certain properties of pigment suspension, drying characteristics, water resistance and durability, which, in spite of its high cost, justify its use. With



the stopping of imports of this oil from China and the freezing of stocks already on hand for military uses, some substitution of available material had to be made. The most logical substitute, Perilla oil, is unfortunately equally scarce. Specially processed dehydrated castor oil can be manipulated so as to be a fair substitute for the China-wood oil and it is apparently available in adequate quantities to take the load.

In the case of paint vehicles known as alkyds which comprise a whole family of synthetic resins, one of the basic raw materials is the compound phthalic anhydride. While the alkyd vehicles are yet relatively new in exterior finishes, they have been making rapid progress and show much promise. They have been used to some extent in freight-car finishes. Some months ago the government placed orders for another derivative of phthalic anhydride, in connection with explosive manufacture, which absorbed the entire productive capacity of the country for a long period, thus making it impossible for industrial users of alkyd paints and enamels to extend the use of these materials as a substitute for the China-wood oil finishes. In the field of other synthetic resins, such as the phenolic type, also much used in high-grade finishes, government requirements in connection with explosive production have also absorbed much of the basic raw materials. Here was a situation where several of the most dependable substitutes were unavailable and much work had to be done in order to locate other substitutes which would not be too inferior and which could be obtained.

In the field of paint pigments, similar scarcities developed. One of the desirable combinations of pigments for priming paints on steel surfaces involves the use of zinc chromate. With the loss of the Philippines and the cutting off of much of our supply of chromium ore, the production of zinc chromate pigments has been affected and, while they are still available in small quantities, it

**In view of the anticipated reduction or cessation in the manufacture of such manganese-steel fixtures, we are actively experimenting at the present time with the heat treatment of ordinary rail steel from which substitute frogs and crossings can be constructed. Several methods of heat treatment are available, including various quenching treatments, such as ordinary oil-bath quenching and molten-lead-bath treatments. A new development in flame hardening of the wearing surface of rail steel is also being studied and appears very promising.**

seems likely that we shall have to divert our uses to other materials. This problem is not fully solved as yet.

#### **Greases and Creosote**

One of the soft lubricating greases extensively employed in locomotive lubrication has in the past been rendered adhesive so as to avoid being thrown out of revolving parts or forced out of loosely fitting bearings by the use of rubber latex or of a petroleum derivative having rubber-like properties. The rubber latex for this purpose is no longer available and the petroleum derivative has been largely withdrawn from grease manufacture presumably because it can be diverted into synthetic rub-

ber production. Work is under way at the present time in an effort to retain the desirable properties of such greases without resorting to these two no-longer-available materials.

In the creosoting of bridge timber and cross-ties, it has been the practice in the past to use straight creosote as a preservative. During normal times a considerable proportion of our creosote was imported and importations have ceased. Experimental use of mixtures of creosote and coal tar employing as much as 40 per cent of the latter with 60 per cent of creosote has been made and in most cases this mixture is proving satisfactory. While the coal tar does not have the preservative action of the creosote for which it is substituted, it does have a superior degree of resistance to weathering and washing and we believe the combination may turn out to be as desirable as the straight creosote formerly used. The use of this mixture imposes changes in treating procedure as the mixture is more viscous than the straight creosote and consequently does not penetrate the timber as readily.

#### **Fewer and Poorer Brushes**

Railroads are very large users of brushes for paint and varnish application, as well as for many other uses. Bristle for brush manufacture is hog hair and unfortunately the breeds of hogs raised in the United States do not grow bristle. The world's supply has come from other countries, predominantly in the Orient, including Siberia and China. The Russian bristle disappeared from the market some years ago and for the past few years the Chinese supply has been the one on which the entire brush industry depended. Bristle is a high priced commodity and even after the Japanese had closed the Chinese seaports, bristle still came out of China in fair volume over the Burma Road. Even that supply has not been available for some months and the brush industry is literally living on its fat and is depending on the stocks of bristle already on hand.

The War Production Board recognized the urgency of this situation during February, 1942, by issuing an order requiring the use of some substitute or adulterant in all brushes to the extent of 45 per cent of the total normal bristle content of the brush. Horsehair has been substituted generally but the blended horsehair and bristle brushes will not give good performance or long life as compared with the pure bristle brushes. There are many places where spray painting can be substituted for brush painting and this is particularly true on freight cars and in maintenance painting of structural steel. For many applications, however, only brushes are practical and we must get along the best we can with the much inferior substitutes that are available.

The production of synthetic bristles has not yet reached the point where satisfactory paint-brush bristles can be made, as the synthetic bristles do not have the same characteristics of tapered structure and paint carrying properties as the natural bristle. For stiff brushes, such as scrub brushes, tooth brushes, hair brushes, etc., the synthetic bristles are entirely satisfactory. We are hopeful that through current researches means will be found soon by which synthetic bristles suitable for paint brushes can be produced.

#### **Substitutions and Safety**

One of the constituents in the burning composition of a railroad fusee is potassium perchlorate, which, unfortunately for us, is also one of the major constituents in certain types of aerial flares necessary for use by our

air forces. A considerable part of our potassium perchlorate has been imported in the past, much of it from Japan, and the domestic production is wholly inadequate to satisfy the requirements of the existing civilian plus the new military demands. We have been forced to reformulate the composition of our fusees to meet this situation by the substitution of other available compounds for the potassium perchlorate and fortunately we have been successful in this, although the new formula fusees are much inferior to the old.

Many railroads, particularly those in the south, follow the practice of spraying the roadway with weed-killing chemicals in order to prevent the growth of vegetation in ballast which interferes with drainage and produces unstable track conditions. For this purpose solutions of arsenic compounds have been widely used. Arsenic is produced in fair volume in this country as a by-product of copper refining but in addition to this domestic supply large imports of arsenic from other countries, particularly the Orient, have been necessary in the past. Under present conditions, it appears that we shall not be able to secure the needed amounts of arsenical weed killer and we must look for other available materials instead. Considerable experimental work has been done with certain grades of petroleum distillates which are available from domestic sources.

While the efficiency of the petroleum distillate is not well established, we shall probably be able to get along, although we may have to increase the frequency of our treatments to do so.

The use of railroad electric hand lanterns for signaling in train operation instead of the familiar kerosene lantern has been growing rapidly in recent years and several

states have enacted laws making it mandatory to use electric lanterns for this purpose. Two of the principal ingredients in the dry cell batteries for these lanterns are zinc and manganese dioxide, both of which are on the critical list of materials. The battery manufacturers are extremely alert to this situation and are making the utmost efforts to continue to produce such batteries in adequate quantities, although their mixtures have been altered from those formerly used. One proposal which we are actively investigating at the present time is a newly designed rechargeable storage battery built on the same principle as the battery in your car. In using such a battery it is kept in a charging device when not in actual service in order to keep it in operating condition. We do not know how this development will work out. The batteries themselves are very expensive, a recharging device must be purchased for every point where batteries are used, and men must be trained to utilize such devices intelligently. Whether this expedient will be successful we do not as yet know.

#### Search Continues for Substitutes

I give you these details so as to acquaint you with a few of the situations with respect to material substitutions that are facing American railroads. Some of these have already been solved at least to a workable extent, others still require research and testing before a solution can be reached. We on the railroads who are immediately concerned with many of these problems are working hard on them and shall continue to do so. The necessities are great and I am certain our efforts to solve these problems will be equal to the occasion.

## Reclamation — Now a Patriotic Duty

A reappraisal of an old subject in the light of  
the new emergency conditions

By G. A. Goerner

General Storekeeper, Chicago, Burlington & Quincy, Chicago

**W**EBSTER defines reclamation as the act of making industrial waste products useful. It is not necessary to bring the material back to its original condition. It is only necessary to make the waste product useful. It may be reworked, reshaped or converted into something entirely foreign to its original service. So long as there has been a profitable or advantageous conversion of the scrap item, the process is reclamation. Many items of material are restored to their original state of usefulness. Other work is performed so that the material will serve much better and longer than when it was new.

This may sound fantastic but it is true. At no place are defects in materials, weak spots in design and places of unusual wear more easily detected than at central scrap docks. Here, all car couplers that have been sent in as scrap are segregated to determine if they can be reclaimed. This grouping often discloses a uniform type of break which can be repaired by welding. Likewise, signal crank arms and other items which turn or revolve may be reclaimed from scrap by bushing the shaft hole with material that will keep the reclaimed item in service many times longer than it served originally. Items will

also be found where the original wearing surface may be built up with welding material to produce a product far superior to the item in its original form. When instances like these are discovered, action is taken to correct this condition on future new material, and the economy in labor and maintenance in not having to replace such parts when they wear out may be even greater than the saving in replacement material.

#### Reclamation and Repair

It is difficult to differentiate between reclamation and repair. A considerable portion of the work done at railroad reclamation plants is repair work, and some reclamation is performed in roundhouses and shops. However, it is not so important to draw the line between repairs and reclamation as it is to emphasize the importance, at a time such as this, of doing all that can be done to save the manufacture and use of new materials. During the depression, reclamation was recognized as a necessity. Everything was done to preserve material to the utmost and to reclaim all material that could be reconditioned economically. Because of this, the railroads



have the experience needed to extend reclamation to the fullest advantage.

The net saving from reclamation on one railroad alone during the last calendar year was nearly one-half million dollars. This was the accomplishment of the reclamation plant only. It does not cover any materials repaired or manufactured at shops, roundhouses or at any other place on the railroad. In addition, there was manufactured at the reclamation plant from scrap, material valued at \$65,000 at a net saving of \$27,000. These savings represent the difference between the scrap value of the

**It is difficult to differentiate between reclamation and repair. A considerable portion of the work done at railroad reclamation plants is repair work, and some reclamation is performed in roundhouses and shops. However, it is not so important to draw the line between repairs and reclamation as it is to emphasize the importance, at a time such as this, of doing all that can be done to save the manufacture and use of new materials.**

material plus the cost of reclaiming, including all overhead, such as supplies, electric current and stationery, and what it would have cost if the material had been purchased. Since no material at this plant is reclaimed except on orders from the general store, it would have been necessary to purchase new all the items if they had not been reclaimed or manufactured. The total scrap utilized in this manner amounted to nearly 10,000,000 lb., or 5,000 net tons.

#### Cost Factors in Reclamation

While, under normal conditions, no reclamation or repairs to material should be made unless there is a saving to the railroad, there are occasions which justify an expenditure equal to, or even greater than, the cost of the new material. Today reclamation has become a national necessity. It is no longer only a matter of economy, but a matter of conservation. In self-preservation, the railroads must reclaim material that is difficult to replace. The reclamation of old materials, moreover, saves new and raw products for defense purposes and is, therefore, a patriotic duty in the interest of defense. Today, reclamation of material is more important than it ever has been in the history of the railroads. While a margin of profit was expected in the past, the reclaiming should now be done even though the cost be equal to the purchase price.

#### Burlington Work Centralized

Usually that which is everybody's business receives no special attention. Reclamation should, therefore, be handled as a specialty and studied as such. It will suffer from lack of attention unless it is made the particular business of one man who will head that work. The Burlington inaugurated the office of superintendent of reclamation and scrap 16 years ago. Most other large railroads also have specialty men for this work. Unless there is such specialization, there is the danger of reclaiming material that is not needed and of discarding material as scrap which should be reclaimed. There will also be a lack of uniformity in the work that is done and

perhaps no definite check on the costs to determine its economy.

Centralized plants provide the best means for efficient reclamation. It is the best arrangement from a material-handling and shipping standpoint. Where the reclamation plant is located at a point other than the scrap dock, considerable material must be reshipped. Much material that is reclaimed is picked or sorted out of scrap. There is better control of this, and less opportunity of permitting reclaimable material to be sold as scrap, if the reclamation supervisors are located where they can see the scrap as it is sorted.

Centralized reclamation provides other advantages. Where reclamation is handled at a number of shops or roundhouses, there is not sufficient volume at any one point to justify the purchase of special equipment for doing the work. As an example, where all angle cocks for a large railroad are reclaimed at one point, a multiple grinder will greatly reduce the cost of doing the work. Thus, one man can grind six or more valves at a time. If scrap air or signal hose are dismantled at a number of points on the railroad, there is not enough of this work to justify special equipment for the dismantling, but when the work is centralized, modern equipment will pay for itself in a short time. There is also a better opportunity for specialization which leads to more effective work because of having more of one type of work to do. Thus, one man may become a specialist in reclaiming switch stands, another, brake beams and still another in welding car bolsters. It is not only a matter of knowing how to weld but knowing what may be welded under existing rules.

From a distribution standpoint, centralized reclamation is of special benefit. Where material is reclaimed at a dozen places on the railroad, much of it is not located at the point where it will be needed. If it must be shipped to some other point, it is likely to move in light carloads. When the work is centralized, especially if

**While, under normal conditions, no reclamation or repairs to material should be made unless there is a saving to the railroad, there are occasions which justify an expenditure equal to, or even greater than, the cost of the new material. Today, reclamation has become a national necessity. It is no longer only a matter of economy, but a matter of conservation. In self-preservation, the railroads must reclaim material that is difficult to replace. The reclamation of old materials, moreover, saves new and raw products for defense purposes and is, therefore, a patriotic duty in the interest of defense.**

the reclamation plant is near the general store, the volume of material handled is sufficient to ship it in carload lots to most large stores or in joint carloads to the smaller stores.

Finally, centralized reclamation provides the best stock control for the material to be reclaimed. Material should not be repaired or reclaimed simply because it is reclaimable. It should be reconditioned only because it is needed for the operation of the railroad. Otherwise there is no economy in reclamation. If the reclaimed article is not going to be used, it had better be scrapped before added labor and material are spent to reclaim it. But

that does not imply that reclaimable material should be scrapped because there is no order for it. On the contrary, if it will be used in reasonable time, it should be carefully stored at the reclamation plant until it is needed for stock or for use. The very fact that reclaimable material is on hand and may be reconditioned when needed for use, or for stock, permits operating on a smaller stock, for the control of supply is entirely in the hands of the railroad. Where such material must be purchased or manufactured, the railroad must depend upon others to produce it. Especially today when there is some question about the source of supply or of securing the necessary priority to get material, it is quite comforting to be in the position to help oneself.

Many reclaimable items are worth nearly as much as new materials because the cost to reclaim them represents but a small per cent of the original cost. Therefore, it is as important to prevent damage to them or to avoid their loss as it was when they were new. Delicate items should be crated or boxed when shipped in the same manner that they were cared for when new. Where skids are used for transporting material between stores and the reclamation plant, much of the packing may be avoided, for the skid may provide ample protection. Reclamation by welding can only be carried out to the fullest advantage if parts of broken castings are kept together so that they will arrive at the plant at the same time. This may be accomplished by wiring them together or preparing them for shipment in a special way to bring about such results. The difference between treating old material as so much scrap or handling that which is reclaimable with proper care, on a large railroad, represents a loss or gain of many thousands of dollars. Especially at a time like this when material is at a premium, it is of utmost importance that every effort be made to preserve it.

#### Where Reclamation Starts

Each railroad should make a careful study to determine how much of its material may be salvaged and re-used. It requires a special study of each commodity, or even of each item, because conditions on the railroad, the quantity of an item used, the source of supply and many other matters may have a decided bearing on the advisability of reclamation. An educational campaign should be conducted to train foremen or specialty men at roundhouses and shop points, as well as at all other points where material is released, to inspect the material and determine whether it really should be scrapped. Possibly it should remain in service longer; perhaps a minor adjustment is all that is needed. The best way to take care of a leak is to fix the faucet. Thus, the economy must be most effective where the material is used. It is there that any waste must be checked. In addition, a careful check should be made at the central scrap dock. Material fit for re-use and that which may be reclaimed, repaired or converted for other uses should be salvaged. Reclamation men should seek and receive the full co-operation of specialists of other departments in carrying out this work to the limits of its possibilities.

#### Approved Practices

A complete list of reclaimable material would be needlessly long but some of the newer ideas and methods should be mentioned.

Bolts for cars can be sorted to size, cut back, where rethreading is not desirable, and rethreaded. Engine bolts can be cut to shorter lengths or turned to smaller sizes.

Much round iron and steel, scrap brake-beam rods and the like, arriving at the scrap dock, can be used for manufacturing machine bolts. Stay bolts can be rattled to remove the lime and re-used to make engine bolts or hammered into slabs for locomotive forgings. Crown stays can be annealed and reworked for stay bolts of shorter lengths.

Nuts can be sorted to size and retapped. Grip nuts can be reclaimed by giving them a sulphuric acid bath to cut off the rust, then placing them in caustic soda to stop further action of the acid. They should then be run over a revolving brush to clean the threads.

#### Springs

Coil and elliptic springs can be retempered and brought back to their original set. Broken leaves of elliptic springs should, of course, be replaced. Proper facilities for testing springs should be provided so there will be no question about their service after they are

**Material should not be repaired or reclaimed simply because it is reclaimable. It should be reconditioned only because it is needed for the operation of the railroad. Otherwise there is no economy in reclamation. If the reclaimed article is not going to be used, it had better be scrapped before added labor and material are spent to reclaim it. But that does not imply that reclaimable material should be scrapped because there is no order for it. On the contrary, if it will be used in reasonable time, it should be carefully stored at the reclamation plant until it is needed for stock or for use.**

reconditioned. The steel from scrap springs offers many opportunities for the manufacture of specialties. "S" wrenches, double or single end, can be made from elliptic springs. Nail-pulling bars, stone chisels and many similar items can be made from scrap coil springs. Scrap brake-cylinder springs provide good material for the manufacture of journal-box packing hooks and irons.

Few items of scrap offer so many profitable outlets as scrap boiler flues. They can be used for the manufacture of locomotive pilots, farm gates, snow-fence stakes, sign posts, fence posts and jetties. Knowing their diversified value, scrap dealers are always in search for them.

Driving axles can be reworked into piston rods and other forgings. Car axles can be reclaimed by building up collars of journals or by converting them into axles with other size journals. Piston rods can be turned down for use on lighter power or, if worn to the limit, can be used for making shafts for roadway machinery. Repairing brake beams by using second-hand parts, some of which may be reclaimed from scrap by welding, is profitable.

#### Welding

A. A. R. rules must be followed in reclaiming railway material, but today there are a number of items that ought to be considered so as to extend the use of material where this can be done with safety. With modern welding methods there are few castings and forgings that



cannot be reclaimed by welding to repair broken or cracked places or to build up worn places.

Tinware should be utilized to the best advantage by repairing. Care must be taken to prevent further damage in shipment to repair plants. An engineer's oiler that needs only the spout welded or a leak repaired may be so damaged in shipment with other scrap as to render it useless. Empty carbide cans can be converted into "dope" buckets or waste baskets. Empty paint pails can be cleaned and used for "dope" buckets and for many other purposes where cans are needed.

While valves and unions are usually removed because of leaks, other pipe fittings are removed because of changes in pipe lines. All pipe and fittings removed from service should be inspected carefully and salvaged where practicable. Fittings that have been weakened because of corrosion or wear can be placed in unimportant services where little pressure is used. They can also be used for temporary jobs where they need serve only a short time. In such cases, the material should be so marked that it will not be used for important, high pressure work. All fittings should be removed from pipe and inspected to determine their further value. Threads should be cleaned thoroughly with a fine wire brush before returning them to stock. It may be necessary to chase some threads with a hand tool or pipe tap. Where a tap is used, it should be used for cleaning the threads and not for additional tapping. Some odd size fittings can be retapped for larger pipe. Many valves that find their way to reclamation plants need only cleaning and regrinding. Usable parts from valves that must be scrapped should be salvaged and used for repairs to other valves. Often pipe turned back as scrap is fit for further service except that the threads are battered or worn. Such pipe should be cleaned, cut back and re-threaded. Shorter pieces will do for nipples.

Few commodities can be reworked for so many and varied uses as second-hand lumber. For large timbers

removed from bridges and buildings, a resaw plant is advisable. At such plants the timbers can be sawed to smaller sizes for building work, for car stakes and for the manufacture of other wood products. Car siding, which cannot be re-used as such, can be used for the manufacture of grain and coal doors. Finally, second-hand lumber can be used to patch lumber for coal cars or cut to suitable sizes for use as blocking in freight houses and cars.

Angle bars can be planed to fit lighter rail or be heat-treated and reformed. Worn places in the center of bars can be preheated and built to size by the welding process. Head and tie bars can be welded and redrilled. With the welding processes of today any metal items with worn holes may be repaired satisfactorily. Holes that wear easily can be drilled and bushed. Bent tie plates can be heated and straightened. Surplus plates of one pattern are made serviceable for other patterns of rail by repunching spike holes. Track spikes can be straightened, if not too badly cut under the throat, and used for industry tracks and branch lines.

Track tools should be examined to see whether tolerances should be changed to permit their reclamation. A half inch allowance on shovels or chisels may result in reclaiming hundreds more each year. They will not remain in service so long but that is better than losing their service entirely.

The Purchases and Stores section of the A. A. R. has worked diligently on this subject for years and has made hundreds of recommendations of methods by which items may be reclaimed profitably. These recommendations cover ways of salvaging everything from paper to locomotive forgings, from rubber to rail. In spite of all the progress which has been made, however, hundreds of profitable ideas on material reclamation still lie dormant or hidden from view, and the needs of the present make it highly important that they should be brought to light.

## First, Materials—Then Production— Now, Materials

Thus have the critical needs of national defense changed since Pearl Harbor—  
Railroads and armed services compete directly for many materials

By Andrew Stevenson

Chief, Transportation Equipment Branch, War Production Board

**S**INCE our session of last December which took place, as you recall, just two or three days before war broke out, I think that we have seen probably a complete cycle insofar as the thinking of the War Production Board and its predecessors is concerned. At that time we were concerned with materials. We were bothered by priority ratings.

### The Beginning of Allocations

Early in our experience in the automotive transportation and farm equipment branch, we perceived that priorities as such would increasingly become tight, and that sooner or later, through pressure of having increased ratings, priorities of themselves of course might fall of their own weight. So last fall, Donald Nelson suggested

that farm equipment be used as a guinea pig to go over to allocations. And we tried in our branch to work out some sort of program as to what the farm equipment industry might want in materials for the crop year 1941 and 42, so that we might definitely set aside a certain amount of materials for that industry.

As it worked out, the materials branches of the War Production Board, or at that time the Office of Production Management, were not in position of themselves to tell where the material would come from if we set aside a certain amount for another industry. As a consequence that experiment in going over to allocations really worked out to be simply a change from a B 1 to an A 3 priority rating.

But having seen that materials would get tighter, and that we would either have higher ratings and eventually

allocations, we attempted to work out a railroad program. At the time I was with you last December, that was foremost in our minds, and I believe would have been approved around the first week of December, had not war broken out.

With that advent, of course, we had to wait for a few weeks to see what difference that made, and finally on January 1 had a program approved for the first quarter of 1942. That program contemplated some sort of allocation of materials; that is, these materials were to be given to the railroad industry for new equipment, and in the program on January 27, for maintenance of way. These materials were definitely to be set aside for the railroad equipment industry and for the maintenance of the railroad systems.

Now in working out the mechanics of getting that material, we were confronted with a number of problems, and the chief one was that we didn't know where it was coming from; that is, what industry we were taking it away from, if we gave it to the railroad industry. Nevertheless we attempted to perform on that commitment.

### **Need of War Production Becomes Critical**

With the outbreak of war, however, the second aspect, not materials, but want of production, arose, and caused the organization of the War Production Board. The problem was one no longer of taking materials from less essential or perhaps non-essential industries in a defense effort, but one of taking facilities and of taking labor to turn out war goods. So that we had the term "conversion," we'll say, rather than of priorities—conversion as the central theme of the War Production effort. And on that basis, in order to meet the President's program of guns, and tanks, and ships, and planes, it was necessary not only to take materials away from less essential industries, but to use their facilities and labor.

On that basis we closed down the automotive industry. It was also necessary to take facilities which were then used to make goods we'll say, which we used here in the railroad industry, and turn them over to the army or the other services. On that basis we issued Order L53 which is the so-called "freeze order" on track-laying tractors.

It is not a freeze order, but a production order, in order that the services might secure tractors and that the scheduling of production of tractors might be orderly.

In using the facilities and labor of various industries for the meeting of military demands, we were more particularly concerned in this industry in the use of locomotive facilities, and early in April we issued L97, which is not a locomotive freeze order but a locomotive production order, the same basis as L53—one in which we are attempting to secure some sort of orderly production of locomotives, not only for the railroads of our own country, but for army use here and for use in certain countries abroad.

### **Emphasis Switches Back to Materials**

So we have two aspects of conversion, one is the actual taking of certain facilities away from the products which they customarily are making. And another is the taking of facilities to make the same products for different customers.

The emphasis, however, since somewhere around the second week of May, has changed back to materials. So good a job has been done by all those concerned in the production of war goods, that we are confronted

again today with an even more severe and tight situation for materials needed to keep these converted plants going in the production of war goods.

So it is on that basis that public announcement has been made that we would postpone, if not refrain entirely from building certain contemplated plant expansions. It is on that basis in part that certain conversions of plants are temporarily deferred. True, here and there, and especially I think in the case of railroad shops, as a result of our agreement on May 11, there are certain machine tools from which we need to obtain machine-tool hours.

But by and large I think the problem now is one of getting sufficient materials to keep what we already have in war production running at full speed. This is evident more particularly in the railroad industry because this industry competes with the military effort probably more severely than any other industry. Copper, rubber, iron and steel—not only the over-all materials, but particular

**Since last December we have seen a complete cycle in the thinking of WPB. Then we were concerned with materials. We were bothered with priority ratings. With the outbreak of the war, however, the second aspect—the want of production—arose. Since May the emphasis has changed back to materials to keep the war production plants going.**

items like plates, shapes, bars, castings—are essential to the military effort, and they are items that we take in great quantities.

As a consequence, this increased tightness of materials we felt in our work, and are feeling, and will feel more severely. It is on this shortage of materials, I think, that we can describe the closing down of the new freight-car and passenger-car construction. Two hundred thousand tons of steel per month simply cannot be spared to build freight cars. It's on this basis that we have L41, the construction order, with which the War Production Board is seeking to curtail the amount of construction.

### **How Tightness Affects Maintenance**

Now with the tightness of materials, we are worried about maintenance. I think that I have sufficiently outlined for you the locomotive situation, which is one of production; the car is one of tightness of materials; but maintenance is our chief problem. In this particular, the railroads have done an especially good job, and this last week, as we have gone over the new 351 form which is filed under P88, we have been particularly pleased to see the manner in which the various engineers, together with the purchasing agents, have recognized the situation and are asking for what they feel they need to get along, but not necessarily need to build up additional inventory.

As far as we can tell, there is no reason why in the third quarter we should not receive all of the material that is being requested for maintenance. That is as far as I can judge from these 351's. But while we will get material for maintenance, it doesn't mean necessarily that we will be able to be wasteful or profligate or have too many A-and-B items out of our maintenance account.

We have several especially tight spots. You all know the announced shipbuilding program of 8,000,000 tons this year, and we hope to have more. You know the



announced program of about double that next year. Now you know what that means in terms of plate. As a consequence, realizing that the plate situation would be far tighter, we have asked that you go over to composite cars, so that the plate on hand, regardless of the fact that it might be used in completing cars under the present design, might be saved for necessary repairs. I appreciate that there is some adjustment which has to be made in that case.

We have also asked in that particular that we go over to narrow plate, insofar as possible, on locomotives and also in locomotive repairs. To the extent that we can free these wide plate mills from our demands, and others, we will be successful, I think, in receiving the plate that we need for absolutely necessary maintenance.

We must face the fact, however, that, in the light of this shipbuilding program and in part the tank program, we will not get all the plate we need for a heavy repair or rebuilding program. I am reluctant to bring it up, but I think we might as well appreciate that we may be confronted with this dreadful word "patching."

Now again, in the matter of plate, I believe the railroads have assisted us a great deal, and shown splendid cooperation, especially in this tank-car plate, which Mr. Hawthorne informed me this noon had now been approved, which is the use of thinner gauge for special tank cars which are not contemplated to last the equivalent life time of our heavier plate.

Shapes too are involved in shipbuilding. And as we have started to build a few plants, especially in the case of rubber, that have been too long delayed, the ratio between plates and shapes, narrows. We use more shapes per ton of plate than we do in the case of ships. As a consequence, the shape situation has been unusually acute, and this month we have deferred some 36,000 tons of rail to July, in order that we may roll shapes on the rail mills.

Castings also have been tight. One week plate is the worse thing, and the next week it's shapes, and the following week it's castings, and the next week it's plates again. We never really know when we have one thing licked for good. As a matter of fact, we can't expect it. I think, however, the casting situation should ease, espe-

**As far as we can tell, there is no reason why in the third quarter we should not receive all the material that is being requested for maintenance. But while we will get material for maintenance, it doesn't mean necessarily that we will be able to be wasteful or profligate or have too many A-and-B items out of our maintenance account.**

cially in view of the decreased freight-car building program.

On rail, the material situation has not yet shaped up to the acuteness that we will not get our 1,260,000 tons. However, that is conditioned on the release of relay rail. In that again, I wish to express my appreciation here for what has been done in the case of taking shorter joint bar. The use of the 24-in. bar which goes into effect shortly will relieve us on tonnage that we vitally need. That should be followed up in the matter of tie plates and frogs.

Lumber, too, right now is tight; we are taking about a quarter of our year's output to build certain army camps. That should ease in maybe 60 or 90 days. But

copper and nickel are the worst of all of them.

What has been done on journal brasses following our discussion last December, has probably been one of the most significant things in indicating to the Board the cooperation that the railroads have given and are continuing to give in the conservation of materials.

Now I am delighted that Mr. Pearce, as he has expressed to me today, feels that we now have one that will take the railroads out of the primary copper market for sometime.

### The Purpose of Standardization

In standardization which we discussed before, we were concerned on two counts, one on locomotives, and one on cars. The reason in looking toward standardization of freight-car design last December and January, was that, when the closing down of freight-car production came, which we knew was coming, we could balance up the inventories.

Unfortunately we did not quite reach that standardization picture as far as the cars that were under construction last April were concerned. However, owing to the splendid efforts of Mr. Hawthorne, Mr. Irving, and others, at a meeting that we had some two weeks ago, I believe we have been able successfully to take care of most of the inventory.

In locomotives we are looking toward standardization in a loose sense—the use only of designs that previously had been employed. We are looking toward that type of freezing of design with the idea of production. There have been some departures by the railroads and the builders from those designs, but we intend to insist on them.

The locomotive picture has always been one of concern to the Transportation Branch. As a matter of fact I think we were a "voice crying in the wilderness" as far back as the Advisory Commission days in the matter of power, feeling that as the material situation became tighter and a choice had to be made between cars and locomotives, that we would take the locomotives. We are hopeful that we can build these locomotives this year. It is going to call for exceedingly fine co-operation between the builders and the suppliers and it is going to call for very active participation of the mechanical departments of the railroads, in some cases to build locomotives, in some cases to assemble them, and certainly, in many cases, to manufacture parts for the locomotives if we are going to come anywhere near meeting our domestic and foreign program.

In the production of these locomotives I hope we can continue to carry out our various agreements, and understandings on the elimination of a number of specialties. They are not only causing us concern, production-wise, but more particularly in the matter of the materials consumed.

### Tighter Materials Require Tighter Controls

The material situation is getting tighter. Therefore the material controls must be tighter. About that I am sorry and disappointed, because I would like to see the least amount of reporting possible to Washington. Preference ratings, as such, as you well know, are only permissive and simply give a man a certain rating, saying that he comes behind somebody else in the securing of new material. Our allocations are different. They supposedly guarantee a certain amount of material.

Now in the interim period before we get completely on allocations, which I think we are looking forward to

so far as locomotives are concerned, we have tried to tie it up a little bit both ways. On the one hand we have determinations, and on the other hand we have tried to proceed on an A1-A basis.

The same way on railroad maintenance, and under the materials used by the railroads, we are giving 50 per cent A1-C, and 50 per cent A1-J. But when we come down to an actual allocation as such, we must know not only what we need, and what we are using, but where that particular material is coming from, insofar as it is taken from some other industry.

As a consequence the War Production Board has gone over to a reporting G275 form and a PD25A, and has issued a new regulation No. 10 in which all industries are given a number, and all purchasers must place this number on their orders, and the order be carried on down through every supplier.

To some degree, our 351 under the P88 preference-rating order that railroads have, is excluded from this overall materials control, which every other industry must follow, but our form is the same except for certain changes that we feel we need for our industry.

I mention this last point because I hope that you engineers will appreciate that the life of a purchasing agent is not easy. He comes to Washington and talks with our men, and perhaps comes back and disappoints you very greatly in that he doesn't have certain material. But I hope that you will help him by cutting down on some of those requests at the source, and by watching insofar as you can, the total amount of material you ask for, as well as the specific kinds. I urge that not especially because I think there has been a laxity in the matter up to now, because I think we have had excellent assistance and co-operation on the matter, but because of the purchasing agents who walk out of our place saying, "I don't know how I'll explain that back home."

There was a time when I knew that certain items that we were not getting, were going to industries that I thought were not very essential. At that time we never let up for an instant in trying to get even more than the railroads had asked for. But we know now where these materials are going, and we know especially in the railroad items how directly competitive they are with military necessities, both in army and the navy equipment.

So I think that all of us should get together without regard to whether our department, or the purchasing agent's department, is charged with the responsibility of conserving materials, or whether it is the practice to clear through the President's office before going to the W. P. B., and see that we are saving on materials.

## General Discussion

Following the presentation of papers at both the morning and the afternoon session, several persons took part in a general discussion of which dealt more or less generally with all of the subjects.

In throwing the meeting open for discussion Mr. Ellis commented on the need for careful servicing of shop machinery, particularly with respect to lubrication. Tools which have been worked from four to eight hours a day, he said, might soon be called upon for 24 hours daily.

Speaking specifically to the manufacturers of railway supplies and equipment, he asked that they assign their salesmen, with their special knowledge and engineering ability, to the task of helping the railroads to conserve the materials or equipment with which they are familiar and assist them in keeping it patched up, if necessary.

Mr. Ellis expressed the hope that the mechanical engineers present at the meeting had received sufficient encouragement and inspiration from what they had heard at the meeting that they would go home ready to exercise their initiative, and that the mechanical and other officers in attendance had gotten enough out of the meetings so that they would go home and turn their engineers loose in fields in which they had never dreamed of putting them before.

E. S. Pearce, president of the Railway Service and Supply Corporation, Indianapolis, Ind., commented on the journal bearing research program of the Mechanical Division of the A. A. R., to which Mr. Bryant referred in his paper on substitutions of materials. He attributed the dispatch with which the work was gotten under way by the railroads to the fact that laboratory facilities and trained personnel were already available, as well as the accumulated experience of 10 years of private research along similar lines.

Analyzing the problem which faced the special journal-box research committee of the Mechanical Division, Mr. Pearce named three alternative courses which it could pursue in carrying out its objective to save copper. These were, first the immediate possibility for conservation by reducing the physical dimensions of the standard journal bearing. Some of these changes not only reduced the weight but, he said, were known to increase the service life considerably. By the employment of proper practices in the manufacture and use of the bearing the causes of defects and failures could be eliminated or controlled, thereby reducing the relatively large bearing turnover.

The second alternative was to reduce to a minimum the use of copper alloys by a combination of substitution and design modification. The third alternative, he said, was the elimination of copper alloys by complete substitution.

Mr. Pearce reviewed step by step the developments in the research program up to the present time, in the first several steps of which a reduction of about four pounds in the weight of the bearing has been effected. The next step, he said, is a bearing which is now under service test which reduces the bronze content of the bearing from the standard 25.25 lb. to 8.75 lb. in a 5½-in. by 10-in. size. This consists essentially of a malleable-iron adapter, matching in shape and dimensions the present bearing in which the light-weight alloy bearing is inserted. He pointed out that if all the estimated 14 million bearings in service were to be fitted with these substitute bearings, assuming that they average 5½ in. by 10 in. in size, the aggregate tonnage of non-ferrous metals which could be diverted to other uses would be: copper, 84,000 tons; lead 25,000 tons; tin, 6,000 tons; antimony, 3,000 tons.

John R. Jackson, engineer of tests, Missouri Pacific, who is also a member of the special A. A. R. committee which has in charge the journal bearing research, said that the committee is now undertaking the more difficult part of its assignment in studying the thermal conductivity and deformation of non-conventional design and materials under full loads at a top speed of 100 m. p. h. Mr. Jackson pointed out the difficulties of making major changes in bearings. Radical changes, he said, are impractical unless, as in the case of roller bearings, the present assembly is replaced with an entirely new design.

K. F. Nystrom, mechanical assistant to the chief operating officer, C. M. St. P. & P., spoke briefly on the need for keeping a high percentage of cars and locomotives in serviceable condition.



# Railroads-in-War News

## Canada Tightens Carrier Control

Controller may issue priorities, expend or curtail service, and fix rates

Extended powers and responsibilities have been given by the Dominion government to Thomas C. Lockwood, Transport Controller. Under the new regulations, as announced by C. D. Howe, Acting Minister of Transport, the Transport Controller is empowered, not only to exercise full authority over the movement of freight and persons by issuance of priorities, but also, subject to the concurrence of the Wartime Prices & Trade Board, to fix specific or maximum or minimum rates for railway freight and passenger service.

Since November, 1939, the Transport Controller has had authority to issue priorities as between various classes of freight and passenger service performed by the railways for the armed forces of Canada and her Allies, or on behalf of governmental bodies. Now, the Transport Controller has been given the additional authority to take over any necessary facilities or equipment for the transportation of goods or persons by land, water or highway.

He is likewise empowered to acquire space on such transportation facilities or equipment, secure necessary storage facilities or to enter into contract for the handling and safeguarding of any goods.

The Transport Controller is likewise given power to order the expansion, restriction or discontinuance of railway facilities, services or use of railway equipment. Under the price-fixing clause, he has authority, subject to the concurrence of the Wartime Prices & Trade Board, to fix specific, maximum or minimum rates at which railway service may be provided, or with respect to fares, demurrage or penalty charges.

The Transport Controller may also establish schedules of fares or rates to be charged for the transportation of goods or persons.

The Transport Controller has also been given power to regulate the use of railway facilities or equipment by designated classes of persons at specified times or between specified places.

A Deputy Traffic Controller, James M. McDougall was recently appointed. Both Mr. Lockwood and Mr. McDougall are on loan to the Dominion Government from the Cunard-White Star-Donaldson Steamship Lines.

The Controller's office is in Montreal—261 St. Sacrement St.

## B. of R. T. Contributes \$75,000 Toward Purchase of Bomber

President A. F. Whitney of the Brotherhood of Railroad Trainmen has presented Secretary of the Treasury Morgenthau with a check for \$75,000 which was contributed by B. of R. T. members to be used toward the purchase of an army bomber. The B. of R. T. announcement of the gift also said that the organization has canceled its next convention; and the money which would have been used to conduct that meeting "will be invested in War Bonds."

## Long Joins ODT Staff

W. T. Long, Jr., has been appointed deputy associate director of the Division of Railway Transport, Office of Defense Transportation, with headquarters at Dallas, Tex. Mr. Long has been granted a leave of absence from his position as general superintendent of transportation for the Texas & Pacific.

## ODT Appointment

Norton P. Willis, formerly assistant to the general superintendent of transportation of the Chicago, Burlington & Quincy, has been appointed deputy director of the Division of Railway Transport, Office of Defense Transportation. Mr. Willis, whose headquarters will be in St. Louis, Mo., will be in charge of rail-truck coordination for that area.

## Roosevelt Signs Anti-Trust Suspension Bill

President Roosevelt has signed S. 2250, the so-called Small Business bill, which includes a provision giving the Chairman of the War Production Board the power to suspend the operation of the anti-trust laws and the Federal Trade Commission Act after consultation with the Attorney General.

## May Export Traffic

Cars of export freight other than grain or coal unloaded at Atlantic, Gulf and Pacific ports in May totaled 72,228 cars compared with 50,162 in May 1941, according to the Association of American Railroads.

Cars of grain for export unloaded in May at these ports totaled 3,073 cars compared with 5,290 cars in the same month last year. "This traffic is being handled with no serious congestion, due to the continued cooperation of all concerned, particularly the steamship lines, exporters and shippers," the A.A.R. statement said.

## U. P. War Program Over 2 Years Old

Advance planning evolved many policies to perfect service and help win the war

Steps to be followed by the Union Pacific during World War II were planned by W. M. Jeffers, president of the railroad, soon after Hitler began his attack on Europe and while Mr. Chamberlain was "dickering with the German dictator in an effort to keep England out of war," according to an article in the June issue of the Union Pacific Bulletin. A few of the things that have been done, or are being done every day, the article says, are as follows:

(1) A grade crossing safety campaign is being conducted in every state in which the railroad operates in order that no such accidents may cause a derailment which might damage or delay any freight train carrying munitions of war, troops, equipment or materials for defense plants.

(2) Extensive track work is being done to insure smooth, safe operation at the high speeds requested by the government.

(3) Men in Union Pacific shops have for many months been working 9 hr. per day, 6 days per week, and frequently on Sundays, without complaint.

(4) A policy of rigid economy of materials and supplies has been enforced, not for the incidental saving of money, but for the conservation of materials that may be difficult to replace or which may be needed elsewhere in the defense program.

(5) An intensive campaign in terminals and among shippers and receivers is being carried to insure prompt loading and unloading of freight so that the greatest possible use of equipment can be obtained.

(6) Schedules of regular passenger trains have been lengthened in order to reduce maintenance costs, thereby conserving materials.

(7) Wherever possible branch line trains have been eliminated or schedules reduced in order to release locomotives, cars and men for movement of troops and defense material.

(8) Expert Union Pacific engineers have been assigned and sent to defense plants in all parts of the country to aid manufacturers in designing loading and shipping devices on freight cars to insure safe transportation to assembling depots or embarkation points, resulting in the Union Pacific building hundreds of special cars for particular purposes.

(9) Special traffic officers have been assigned to Washington to render any possible aid immediately to governmental of-

ficers in solving transportation problems quickly.

(10) Executive assistants to the president have been named in various key centers in the West to give prompt and authoritative aid to military authorities and those engaged in defense work.

(11) At general headquarters in Omaha, a special force is assigned exclusively to the handling of the movement of troops and their equipment.

(12) At Council Bluffs terminal, a rigid inspection of all freight equipment received from connecting lines is carried on to insure that no car is permitted to go forward in "bad order."

(13) At Pacific Coast terminals, elaborate precautions have been installed for use in the event of blackout to insure the safe and expeditious movement of trains and troops.

(14) While the Union Pacific was the first railroad to place registered nurses as stewardesses on its principal trains, it was the first railroad to voluntarily release, for the duration of the war, these specially trained young women in response to the request of military authorities for trained nurses for the armed forces.

(15) All advertising of the railroad since before Pearl Harbor has been keyed to the defense theme.

(16) Wide distribution is being given to a series of posters emphasizing the part railroads and railroad employees are playing in the national defense picture.

(17) The Union Pacific, in collaboration with other railroads entering the Union Station in Omaha, has installed an elaborate service men's quarters there. All sorts of games, sleeping rooms, lounge rooms, shower baths, reading and writing rooms are provided. Hot coffee, doughnuts and cigarettes are available. Trained nurses are on constant duty. The rooms are open to all service men, 24 hr. per day and everything is free. It is the only such service, at this time, any place in the United States.

### Committee to Supervise War Work in Railroad Shops

Formation of a committee composed of representatives of railroad management, railroad employees, and the government to supervise the performance of war production work in railroad shops has been announced by Director Eastman of Director of Defense Transportation. The committee was named as the result of a recent agreement between railroad management and representatives of shop craft and clerical employees to produce war materials in railroad shops under existing labor contracts.

Otto S. Beyer, director of the ODT's, Division of Transport Personnel, heads the newly-formed committee. Other members are: George A. Landry, chief of the Staff Service Branch, Production Division, War Production Board, Andrew Stevenson, chief of the Transportation Branch, Division of Industry Operations, WPB; M. W. Clement, president of the Pennsylvania; W. M. Jeffers, president of the Union Pacific; Ernest E. Norris, president of the Southern; B. M. Jewell, president, Railway Employees' Department, American Federation

### Army Opens Consolidating Station in Chicago

In an effort to alleviate the strain on railroad freight facilities, the United States Army opened a consolidating station in Chicago on June 15 for the purpose of converting l. c. l. westbound Army shipments into solid carloads. This action, a War Department announcement said, is expected to save considerable time, money and freight cars in the handling of small but essential Army shipments.

The new station, first of its kind, will be operated by the Traffic Control Division, Transportation Service, under the Services of Supply. It will utilize the facilities of the Chicago Junction, adjacent to the Army's Chicago Quartermaster Depot, and will be able to handle 10 freight cars and 10 trucks simultaneously.

The announcement from the War Department noted that later another station may be opened in New York or Philadelphia, or one in each city, for the purpose of consolidating shipments from the factories on the eastern seaboard.

of Labor; F. H. Knight, general president, Brotherhood of Railway Carmen of America; H. J. Carr, vice president, International Association of Machinists. George M. Harrison, grand president of the Brotherhood of Railway Clerks, will serve as an alternate for one or the other labor members when there is a matter up which affects his organization.

### Ore Loading Record

A new high record for all time in the number of freight cars loaded with iron ore and all other ores was established by the railroads in the week ended June 6, according to the Association of American Railroads. The total for that week was 92,453 cars. The previous record was established in the week of July 14, 1923, when the number of cars loaded with ore totaled 89,087.

### ODT Bus Order

Atlantic Greyhound Corporation and the Carolina Coach Company have been ordered by the Defense Transportation to coordinate their bus operations at points jointly served, honoring each other's tickets between such points and diverting business for the purpose of relieving overloads and reducing operation of extra sections. Service at several points in North Carolina and Virginia is affected by the order (Special Order ODT B-5) which is based on plans submitted by the two companies.

### Long Island Should Handle Jones Beach Business, Says ODT

Application of Office of Defense Transportation policy for the curtailment of bus operations would require that Jones Beach passengers should use the Long Island to Wantagh and that bus services to the beach

should be confined to shuttle operations out of that rail station. This was pointed out by ODT Director Eastman in a recent telegram advising Robert Moses, president of the Long Island State Park Commission, that General Order ODT No. 11's prohibition against service to amusement areas does not apply to Jones Beach inasmuch as it is less than 15 miles from the boundaries of New York City. Meanwhile, however, ODT has issued no order requiring the elimination of through bus services between New York and the beach.

### WPB Transportation Branch Appointments

O. J. Parks and Charles P. Whitehead have been appointed consultants to the Transportation Equipment Branch of the War Production Board. Mr. Parks, who will specialize in car building and conversion of car building plants, has been general superintendent of equipment for the General American Transportation Corporation. Mr. Whitehead, who will advise on problems arising in the manufacture and production of gasoline, steam, electric, and Diesel locomotives, has been vice-president in charge of sales for the General Steel Castings Corporation.

### Increased Transportation Tax Tentatively Approved

The House ways and means committee, which is currently considering a new tax bill to meet the financial burden of the war, has tentatively approved a tax of 10 per cent on all transportation fares including seats and berths. Based on estimates submitted last year, this doubling of the present tax would yield something like \$75,000,000 a year. The Treasury had recommended that the rate be increased to 15 per cent on transportation fares and 20 per cent on seats and berths.

Later, on June 17 the Committee tentatively approved a five per cent tax on freight and express shipments. It was estimated that the tax would yield \$300,000,000 a year.

### Priorities Procedures Simplified

Use of preference rating will be simplified and standardized by the terms of an amendment to Priorities Regulation No. 3, announced June 12 by the War Production Board.

Effective July 1, any preference rating, no matter how it has been assigned, may be applied or extended by a single form of certification, which states merely that the purchaser certified to the seller and to WPB that he is entitled to use the preference ratings indicated on his purchase order, in accordance with the terms of Priorities Regulation No. 3.

In addition to the standard certification, orders on which a preference rating is applied or extended after July 1 must also include the identification symbols required by Priorities Regulation No. 10, which established the Allocation Classification system. Class I producers as defined in Priorities Regulation No. 11—large users of metals required to apply under the Production Requirements Plan—are prohibited from extending ratings for any purpose after



July 1. They must file PD-25A applications to obtain their materials requirements, and they may apply only ratings assigned on their PRP certificates or ratings specifically assigned to them for construction or acquisition of capital items. Ratings assigned on PRP certificates, like all other ratings, will be applied by the standard form of certification prescribed by the amended Regulation No. 3.

#### **R. L. E. A. Wants Three Members on Manpower Policy Committee**

The Railway Labor Executives' Association has deferred "participating officially" in the work of the War Manpower Commission's Manpower Policy Committee until the commission acts on its request that three representatives of the railway labor organizations be appointed. As noted in the *Railway Age* of June 13, page 1158, the commission recently announced that the policy committee would consist of seven management representatives and seven labor representatives—the latter to include three from the American Federation of Labor, three from the Congress of Industrial Organizations and one from the railroad labor organizations. H. A. Enochs, chief of personnel of the Pennsylvania, is the representative of railroad management.

#### **Parties Reach Deadlock Over Vacations Issue**

The railroads and the 14 non-operating brotherhoods have become deadlocked in their negotiations regarding the interpretations to be placed on the vacations-with-pay agreement worked out last December and have asked the National Mediation Board to select an arbitrator, it was learned this week.

After several meetings, the carriers and the brotherhoods have reached an agreement on some questions, but a railroad spokesman said that the major questions are still in disagreement. It is also understood that the Mediation Board has asked Wayne L. Morse, Dean of the University of Oregon Law School and a public member of the National War Labor Board, to act as arbitrator. Mr. Morse served as chairman of last year's Emergency Board which rendered the decision giving railroad labor vacations-with-pay.

#### **Pacific N. W. River Haulers Seek Tank Car Restrictions**

The Inland Empire Waterways Association has submitted a plan to the Northwest Congressional Delegation for consideration by the Office of Defense Transportation, which limits railway tank car service to Portland, Ore., Seattle, Wash., and the Dalles. It estimates that not more than 500 to 600 tank cars would be needed for shuttle service between California points and the marine storage facilities in those cities, compared with the 2,200 tank cars now reported in use in the Northwest.

The Association asserts that, under its plan, necessary tank cars would move in trains as rapidly as possible from California points to the Northwest and their contents would be distributed through use of Columbia river transportation to points from which truck deliveries could be made. The

#### **Big Rail Scrap Supply Made Available**

The nation's stockpile of used rail and scrap steel should be considerably increased in the near future if the Southern Pacific and the Central Pacific decide to dismantle the Promontory Point branch in northern Utah, authority for the abandonment of which was granted on June 11 by Division 4 of the Interstate Commerce Commission.

The line which may shortly be dismantled is that part of the original Central Pacific line which figured in the driving of the Golden Spike at Promontory Point, Utah, on May 10, 1869, linking up that line with the Union Pacific to form the first railway to the Pacific Coast. It extends from Lucin, Utah, to Corinne, 120.8 miles.

Further evidence that the railroads are seeking to curtail the retention of scarce materials and equipment in lightly-patronized services, and to divert these materials where they will contribute substantially to the war effort was revealed this week when the Atchison, Topeka & Santa Fe asked commission authority to abandon some 78 miles of track in Oklahoma and New Mexico in addition to 193.3 miles in Kansas and Oklahoma for which authority was sought last week.

brief states that truck-tankers are not being used to more than 40 per cent of their capacity and that river vessels are idle a large part of the time. It adds that the present traffic burden of the railroads would be reduced if they were restricted to such shuttle service because this would eliminate the handling of individual cars to a large number of widely separated points in the Northwest.

Later, on June 17, the House passed and sent to the Senate a bill authorizing the construction of a barge canal across Northern Florida and at least two pipelines designed to transport oil from the western coast of Florida to the eastern coast and from oil fields in Mississippi to either Savannah, Ga., or Charleston, S. C. The estimated cost of the projects is \$93,000,000.

Reversing its decision of June 1, the House passed the bill by voice vote after rejecting, 205 to 134, a motion to recommit the legislation to the Rivers and Harbors Committee and eliminate the barge canal.

#### **Coal Shipments to New England Are Short, Says Ickes**

Statistics for the first five months of 1942 indicate that New England is receiving coal at a rate approximately 3,000,000 tons per year short of the 26,000,000 tons estimated as needed to meet this year's wartime requirements, the Office of Solid Fuels Coordinator announced on June 13.

The figures showed that 9,686,014 tons had been moved by all routes into the region during the first five months of this year. At this rate, it was pointed out, New

England would receive approximately 23,000,000 tons of coal in 1943.

All-rail shipments of bituminous and anthracite coal into the New England area were increased by an average of over 114 cars daily during the week ended on June 6 as compared with the week ending May 30, Solid Fuels Coordinator Harold L. Ickes reported on June 15, on the basis of figures furnished by the Association of American Railroads. Shipped into the area through railroad gateways in the week were 6,752 cars of coal or approximately 371,360 tons.

#### **OPA Price Regulations**

The effective date of the general maximum price regulation as it applies to charges for services performed in connection with transportation has been postponed to July 1, by the Office of Price Administration. The regulation specifically exempted rates charged by railroads and other common carriers offering their services to the general public, but it does apply to charges for transportation services of carriers other than common carriers; car loading and car unloading companies; freight forwarders; commercial storage and warehousing; freight forwarders; consolidators or distributors not offering their services to the general public as common carriers; terminal services; services of transportation brokers, customs brokers, and transportation agents (other than employees of transportation companies); and pre-cooling, icing, ventilating and heating of shipments and transporting equipment.

The postponement does not affect the record-keeping requirements of the regulation or the requirement that beginning July 1 persons under the regulation must have available for inspection statements showing their ceiling prices.

#### **Railroads Ask I. C. C. to Suspend Rate and Classification Probes**

Asserting that "there could not be chosen a time more inopportune or more onerous for the prosecution of investigations which, at best, in existing circumstances must be largely academic in form and substance," the railroads have asked the Interstate Commerce Commission to cancel the hearing scheduled for September 22 at Indianapolis, Ind., in the Nos. 28300 and 28310 investigations of the class rate structure and Consolidated Freight Classification. At the same time the railroad petition supported those previously filed by American Trucking Associations, Inc., and others, asking for a suspension of these proceedings for the duration of the war.

The commission's announcement of the Indianapolis hearing was noted in the *Railway Age* of June 13, page 1159. As stated there a previous railroad petition for indefinite postponement of the investigations was denied last fall. In renewing their plea in the present petition the carriers say that "all commerce and industry, including transportation, are so disturbed and distorted by war needs that present conditions afford no factual foundation for the prescription of a rate structure for future publication." They go on to assert that "conditions are now shifting so rapidly and

continuously that they do not pause long enough to be blueprinted." Also, the railroad petition referred to the fact that the carriers are experiencing the effects of war demands upon their clerical personnel, thus leaving them in no position to prepare the necessary material as fully as should be done.

Finally, they "respectfully" suggested that "what the rate on any article between any two points should be some years from now appears an issue of minor consequence in contrast with momentous issues confronting all Americans."

### Kelly Named Associate Director of ODT Materials Section

Warren W. Kelly, general purchasing agent of the Atchison, Topeka & Santa Fe, has been appointed associate director of the Office of Defense Transportation's Section of Materials and Equipment.

Mr. Kelly was born at Winfield, Kan., on November 30, 1885, and attended Washburn Academy at Topeka, Kan., and the Rose Polytechnic Institute at Terre Haute, Ind., graduating from the latter in 1907. He first entered railroad service as a chain-



Warren W. Kelly

man on the Santa Fe during the summers of 1903 and 1906, and after graduation reentered the engineering service of the Santa Fe in September, 1907, as a chainman. Mr. Kelly subsequently served as a rodman, transitman, assistant engineer, pilot engineer, and chief pilot engineer. In 1917, he was promoted to division engineer at Winslow, Ariz., and in 1919, he was transferred to San Bernardino, Calif. In 1921, he was promoted to district engineer at Los Angeles, and in 1929 he became chief engineer of the Western lines, with headquarters at Amarillo, Tex. On July 1, 1938, Mr. Kelly became general purchasing agent for the Santa Fe system, the position he was holding at the time of his appointment to the ODT staff.

### I. C. Adjusts Passenger Service to Save Locomotives and Cars

Changes in passenger train schedules which will save five locomotives and eight passenger-train cars will be placed in effect by the Illinois Central on June 28 "to fit the pattern of railway operation dictated by wartime needs and urged by the federal government." According to J. V. Lani-

gan, passenger traffic manager, "Wartime requirements are for schedules somewhat more liberal in point of time than in the past, so they can be lived up to while handling, on the same tracks, a greatly increased volume of freight. They call for a greater proportion of daytime service, with consequent advantages to local territory and with coaches handling the larger number of passengers per car and per train. They call for reduction in mileage, where possible, and the consequent release of equipment for other wartime needs, including special troop trains."

The schedules of more than 30 trains are involved. Two main-line local trains between Jackson, Miss., and New Orleans, La., are being discontinued, and two in Iowa are having their runs shortened. Two other locals between Memphis, Tenn., and New Orleans over the Valley route are being transferred, in effect, from night to day service by the extension of present daytime runs to fill in their territory. Typical of through-train readjustments are the 30 min. and 20 min. respectively that are added to the schedules of main-line through trains Nos. 3 and 4 between Chicago and New Orleans, and the addition of 15 min. to the Chicago-New Orleans run of train No. 1.

### Southern Pacific Load 85 Per Cent Greater Than in '29

The load carried by the Southern Pacific so far this year, measured by tons hauled one mile, is more than 85 per cent greater than in the same period of the boom-time record year of 1929, according to A. T. Mercier, president, in an article in the June issue of the railroad's magazine. "An even greater wartime traffic is in prospect," he says, "but with the effective working relationship with the military and the co-operation of shippers, the company will handle the extraordinary load with only such delays as war conditions may make inevitable. The 85 per cent increase in 1942 over the corresponding period of 1929 has built up from an increase of more than 56 per cent in 1941 over 1929.

"While our volume has greatly increased," he continues, "it should not be assumed that either revenue or net income has increased proportionately. The average revenue received in 1941 was 26 per cent less per ton mile and 40 per cent less per passenger mile than on 1929. Expenses, on the other hand, including wages and costs of many kinds, have increased substantially. The revenues which the railroad has received have been used to increase our ability to do the wartime job through the expansion of facilities and additions to equipment, and also have been used to pay back some of the vast sums the company had to borrow during the depression years."

Increase rather than decrease in the size of the Southern Pacific's load is in prospect, he adds, but to meet this increase the company will have further additions to its equipment and facilities. For example, out of the 252 locomotives ordered in anticipation of increased volume of traffic since 1939, the Southern Pacific will place in service this year 80 new heavy-duty road engines costing more than \$18,000,000 and a number of Diesel switchers. Of the 80 locomotives, 42 remain to be delivered. As

they are received at intervals from now on to the end of the year, they will help materially in meeting the increased volume as it comes along, he said.

### Sampson Named ODT Passenger Assistant

H. R. Sampson, general passenger agent of the Chicago & Eastern Illinois, has been appointed passenger assistant to Director Henry F. McCarthy of the Division of Traffic Movement, Office of Defense Transportation.

Mr. Sampson was born at Washington, Ill., December 6, 1897, and was graduated in 1922 from James Milliken University, Decatur, Ill. He entered railroad service in June, 1922, as a stenographer in the engineering department of the Pennsylvania at Indianapolis, Ind., leaving after a few months to accept a similar position in the Illinois Central's passenger department at Chicago. In October, 1923, Mr. Sampson became an I. C. passenger representative at Minneapolis, Minn., and he was its ticket agent at Sioux City, Iowa, from March until May, 1924. At the latter time he was transferred back to Chicago where he served as general clerk in the general pas-



H. R. Sampson

senger office until May, 1927. Mr. Sampson then left the I. C. to become traveling passenger agent for the C. & E. I., a position which he retained until November, 1935, except for a 1929-1931 interval when he was manager of that road's Chicago travel bureau. In November, 1935, Mr. Sampson became general agent, passenger department, and in July, 1938, he was promoted to general passenger agent, the position he was holding at the time of his appointment to the ODT staff.

### East Coast Tank Car Movement Is Up Slightly

Rail movement of oil to the east coast from the west averaged 666,810 barrels daily during the week ended June 6, according to an announcement by Petroleum Coordinator Harold L. Ickes. This is an increase of 2,580 barrels a day over the preceding week, when car loadings averaged 664,230 barrels daily.

In handling this movement the 28 oil companies loaded 22,227 cars. Including cars that were on the way back west for reloading, it is estimated that the east coast service employed 53,400 cars, taken



largely from other sections of the country.

Meanwhile, Mr. Ickes said that barring delays, work on the 550-mile Longview, Tex.-Salem, Ill., area pipe line project could be started in mid-July and completed by December 1, at which time it will begin affording "substantial although not complete relief to the east coast oil supply situation".

## Materials and Prices

Following are references to orders of interest to railroads issued by the War Production Board and the Office of Price Administration since June 6.

**Freight car materials**—Amendment No. 2 to Supplementary Limitation Order L-97-a-1, as explained June 11, permits the free exchange of material between producers or suppliers for the construction or repair of railroad car parts only if the material had been obtained under a preference rating for the construction of cars.

**Hand tools**—General Preference Order E-6, issued June 12, limits the type of steel which may be used in producing hand service tools and also limits the orders which producers of such tools may fill. Chisels, hammers, snips, pliers, punches, screwdrivers and wrenches may not be manufactured out of any alloy steel except those series specifically designated in the order. No producer may fill any purchase orders except those rated A-10 or higher. Distributors and retailers may continue to sell on unrated orders, after they have filled all orders with ratings.

**Light bulbs**—An amendment to Limitation Order L-28, effective July 1, curtails the use of critical materials in the manufacture of electric light bulbs. The base, formerly made of solid brass, will be made of steel plated with brass. Lamp leads, formerly made of nickel and copper, will be made of iron wire plated with nickel and copper. Filament supports, formerly made of nickel and molybdenum, will be made of iron wire plated with nickel. The filament will continue to be made of tungsten, since no satisfactory substitute has been found. The plating process will require only about a tenth as much of the critical metals as was used before.

**Pails**—Limitation Order L-30, requiring 30 per cent reduction in the use of iron and steel in the manufacture of pails and tubs, was amended on June 12, removing from the restrictions of the order any pail or tub which contains metal only in hoops, bails, ears and handles, provided the total weight of this metal does not exceed 15 per cent of the weight of the article. The amendment does not prohibit the further manufacture of metal pails and tubs. They may be produced, under the limits of the original order, until the end of June, but the unrestricted production of wooden pails and tubs is expected to result in a return to the wooden article.

**Priority certificates**—Priorities Regulation No. 3, effective July 1, revises preference rating applications by permitting any rating, no matter how it has been assigned, to be applied or extended by a single form of certification, which states merely that the purchaser certified to the seller and to WPB that he is entitled to use the preference ratings indicated on his purchase order, in accordance with the terms of Priorities Regulation No. 3. Provisions of existing orders, which require a purchaser to furnish his supplier with copies of preference rating orders or other special certifications, are all rescinded. This change does not, however, affect any provision of existing preference rating orders which limits the kinds of material which may be obtained by use of the assigned rating, or which requires specific information on purchase orders. In addition to the standard certification, orders on which a preference rating is applied or extended after July 1 must also include the identification symbols required by Priorities Regulation No. 10, which established the allocation classification system. The amended Regulation No. 3 restricts extension of preference ratings, in most cases, to material which will be delivered to, or physically incorporated in a product delivered to the person to whom the rating was originally assigned, or which will be used to replace inventory materials so delivered, subject to definite limitations. A

Mr. Ickes has also approved the plans for the construction of an eight-inch petroleum products pipe line across northern Florida to help supply the Atlantic coast as far north as Norfolk, Va. The project, which would be built with second-hand pipe excavated in Texas, was proposed by the American Liberty Pipeline Company.

rating may not be extended to replace materials in inventory except to the extent necessary to restore the inventory to a practicable working minimum. No rating higher than A-1-b may be assigned to orders for replacement of materials in inventory, even though the order for which the materials were used may have carried a higher rating. A basketing provision permits the simultaneous extension of ratings which have been assigned by different preference rating certificates or orders on a single purchase order. When ratings are basketed in this way, the lowest rating may be extended for the whole order, or the various items in connection with which the ratings are extended may be listed separately, with the corresponding rating applied to each.

**Scrap rubber**—A nation-wide scrap rubber collection campaign to begin June 15 was announced on June 14. All scrap rubber coming from citizens during the campaign will be turned in by them at filling stations. Filling stations will pay for reclaimable rubber at the uniform rate of a penny a pound. Oil companies which serve the filling stations will collect the rubber and take it to central concentration points. The oil companies will sell mixed scrap to the Rubber Reserve Company at the rate of \$25 per ton in carload lots. Industrial scrap may either be sold to oil companies at bulk distributing stations or sold through the usual channels of trade.

**Steel tubing**—Users of steel tubing were requested on June 8 to limit their consumption of cold drawn seamless tubing to those operations where no substitute is possible. Wherever possible, hot rolled seamless, electrically welded, gas welded, lap welded, butt welded or lock joint tubing must be substituted. Design or production engineers, purchasing agents and all people concerned with the securing of material must give this problem very serious consideration. Unless the capacity of the cold drawn seamless tubing industry is conserved for essential applications, drastic regulatory action is threatened.

**Scarce materials**—Priorities Regulation No. 11, issued June 10, as the first over-all effort to co-ordinate control of the distribution and use of scarce materials, provides for establishing definite quantitative limits to the acquisition of metals and other scarce materials by any person or company using more than \$5,000 worth of metal in a calendar quarter. Government arsenals, shipyards, etc., are subject to the requirements, as well as manufacturers of munitions, ships, airplanes and all other large users of metal. The regulation, however, excludes companies engaged in transportation. All companies subject to this order that use over \$5,000 worth of metal quarterly are defined as Class I producers, and are required to file a production requirements plan application not later than June 30. A statement by William L. Batt and J. S. Knowlson, accompanying the order, explains that the huge materials requirements of the growing war production program make it necessary to institute much stricter controls over the use of metals and other scarce materials. The priorities system of giving preference to defense orders no longer provides adequate control. Creation by the President on June 9 of a Combined Production and Resources Board to co-ordinate the distribution of materials and the production programs of the United States and its Allies gives WPB increased responsibility for directing every available pound of material into the war program and absolutely essential civilian uses. The general staffs of the United Nations will advise the Combined Production and Resources Board as to strategic requirements of weapons and ships. In the same way, the Armed Services of the United States and the Maritime Commission will inform WPB of the type of materials and equipment most vitally

needed, and their order of urgency. The Requirements Committee of WPB, on the basis of these statements of direct war requirements and other information on essential civilian needs, will establish broad policies for the distribution of scarce materials. The policy decisions of the Requirements Committee, on which the Army and Navy are represented, will determine the part of the total available supplies of basic materials which can be made available in each calendar quarter to war industries and other consuming groups.

**Gasoline**—All gasoline for occupational non-highway purposes on the East Coast will be rationed through E and R coupon books under the permanent rationing plan, effective July 15. The books, containing enough coupons for a six-month supply, may be obtained at local rationing boards. Applicants may be issued one or more E or R books, depending upon the amount of gasoline for which need can be established during this period. An E book will contain 48 coupons with an exchange value of one gallon each, and an R book will have 96 coupons with an exchange value of 5 gals. each. Bulk purchase coupons in 100-gal. and 1-gal. denominations may be issued when the ration totals 250 gal. or more a month. Bulk purchase coupons are to be issued for the convenience of large users, who store gasoline in tanks. However, E and R books may also be used for deliveries of gasoline into storage tanks as well as into vehicles. R books and bulk purchase coupons will be issued for larger motor equipment.

**Lumber**—Amendment No. 4 to Supplementary Regulation No. 1 to General Maximum Price Regulation excepts deliveries of lumber produced in Alaska from the provisions of the general maximum price regulation for a period of 60 days after June 10. Under the seasonal pattern of production, the highest delivered prices of March, 1942, designated as base maximum prices in the general maximum price regulation, are not a satisfactory basis for maximum prices, and action was taken to prevent an interruption in the supply of lumber for war needs.

**Paint pails**—Revised Price Schedule No. 43, as amended June 6, establishes maximum prices for used steel paint pails of 2, 3 and 5-gal. capacity. Schedule No. 43, as amended, also makes certain deductions from the maximum prices established for reconditioned drums.

**Reinforcing bars**—Maximum Price Regulation No. 159, effective June 15, establishes, as a ceiling, prices based on an allowance to the fabricator of a margin of 50 cents per cwt. of bars over and above the cost of the bars to the fabricator at the steel mill, excluding freight and extras. These are the prices at or under which approximately 75 per cent of the fabricators were operating in April, 1941. The pricing provisions pass on to the consumer all charges for freight from mill to fabricator and from fabricator to consumer. However, where a fabricator obtains an advantage as the result of an in-transit freight rate, the regulation requires him to pass this advantage on to the consumer. Also, where delivery is made by truck instead of by railroad, an arbitrary charge of 10 cents per cwt. may be made.

**Second-hand machinery**—Maximum prices for second-hand machinery and electrical products will be established July 1, under the terms of Maximum Price Regulation No. 136, on machines and parts, according to notices issued June 8. Used processing, mining, construction, electrical and railroad machinery and equipment, together with parts of such machines, are included in the machines or parts covered by the regulation.

**Typewriters**—Maximum Price Regulation No. 162, announced June 12, setting maximum prices for the sale and rental of used typewriters at levels considerably lower than those which prevailed during March, 1942, establishes in specific dollars and cents the prices for each make and model. The ceiling prices for second-hand typewriters reflect price levels which existed October 1-15, 1941, adjusted for reconditioning and rebuilding costs charged in March, 1942. Resulting retail top prices are about 4.3 per cent less than March, 1942, prices and about 3.5 per cent above October, 1941, prices. Rental rates fixed by the regulation are generally those which existed during October 1-15, 1941, but do not include pick-up and delivery charges. The sale of used typewriters, as well as new typewriters in the hands of dealers, is now limited to persons who have obtained the pre-requisite purchase certificates from War Price and Rationing Boards. Rentals, however, are not subject at present to rationing regulations.

# GENERAL NEWS

## N. W. Univ. Opens Its Tech. Institute

Railway manufacturer's philanthropy will afford technical "co-operative" training

On June 15 and 16 the new Technological Institute of Northwestern University, at Evanston, Ill., was formally dedicated, bringing to fruition the dream of a prominent railway supply inventor and manufacturer, Walter P. Murphy, chairman of the Standard Railway Equipment Manufacturing Company, Chicago, whose gift of \$6,735,000 in 1939 made possible the new engineering school, which will feature co-operative engineering courses to promote industry and transportation through education.

Mr. Murphy, whose inventions have led to numerous improvements in many fields, and especially in the construction of freight cars, had little formal education himself, but had a keen desire to establish an educational institution to help young men in the transportation and engineering fields. He was born at Pittsburgh, Pa., on January 26, 1873, and entered railway service at the age of 16, later becoming foreman of the Missouri Pacific shops at Coffeyville, Kan.

In 1898 he joined his father in the railway supply business at St. Louis, Mo. He later took out more than 40 patents designed to eliminate waste in construction or to strengthen and lengthen the life of railway equipment. In recent years he has been living in California. On his physician's orders, he was unable to attend the dedication ceremonies of the new institution that will perpetuate his ideals, if not his name.

Mr. Murphy planned for many years to establish an institution which would combine theory and practice in engineering. For that reason the new institute will operate on the "co-operative plan," with the students alternating at study and employment in industry and transportation, gaining first-hand knowledge of the practical application of the principles studied in classrooms. Civil, mechanical, electrical and chemical engineering will be taught, and the curriculum for all courses will be based on a five-year period, including eleven quarters of laboratory and classroom instruction and seven quarters of employment in industry.

To house the Technological Institute, an attractive new building of Lannon (Wis.) stone, with six wings containing nearly ten acres of floor space, has been constructed on the Northwestern campus at Evanston. In addition to the engineering departments previously mentioned, the new building will

house the departments of physics and chemistry of the university. The building was completed last February at a cost of approximately \$5,000,000, and about \$1,000,000 worth of new scientific and research equipment has been installed since.

In addition to constructing and equipping this modern engineering educational institution, Mr. Murphy's gift provided \$210,000 for an anticipated operating deficit in the first five years, and \$50,000 for scholarships and fellowships. Already, the institute is engaged in research in connection with the nation's war effort, and its first class will be graduated in June, 1944.

More than 1,000 leaders in industry, science and education from all parts of the United States attended the dedication ceremonies, which were addressed by Dwight



Walter P. Murphy

H. Green, governor of Illinois; Lieutenant-General William S. Knudsen of the Advisory War Production Board; Martin W. Clement, president of the Pennsylvania Railroad; Donald M. Nelson, director of the War Production Board; Charles F. Kettering, president of General Motors Research Corporation; and Jesse H. Jones, Secretary of Commerce, as well as many others. A highlight of the opening session was a congratulatory telegram from President Roosevelt which read in part: "It is characteristic of the vision and generosity of Walter P. Murphy to make possible this great enterprise in the co-operative method of education, and educators and citizens generally will watch the work of the new institute with keen interest."

On the second day of the dedication ceremonies 15 honorary degrees were  
(Continued on page 1220)

## More Testimony in Pullman Suit

Monopoly-dictated terms would not be like those now in effect, Crawford says

The Pullman Company in recent years has not been afraid that another sleeping car operating company might be formed to compete with it, since the profits from such operations have been too small to be attractive, said David A. Crawford, president of the company, in resuming his testimony in the anti-trust suit in which Pullman and its officers are defendants. There has been ever present, however, he added, the possibility that individual railroads might operate their own sleeping cars if it should be to their advantage, and this possibility has compelled Pullman to give the railroads terms constantly more favorable to them as new contracts have been negotiated.

As reported in *Railway Age* for June 6 and June 13, the trial before a three-judge special court sitting in Philadelphia is proceeding after adjournment from November, 1941. Mr. Crawford returned to the stand after several other defense witnesses had been heard in order to complete his testimony, particularly with reference to numerous letters, memoranda and other exhibits introduced by the Department of Justice in support of its allegations of monopolistic practices. Extended cross-examination following his direct testimony was interrupted at adjournment on June 16 to allow him to attend to urgent business, and other defense witnesses were heard on June 17 and 18.

Under questioning by Ralph M. Shaw, chief of counsel for the defense, Mr. Crawford explained the circumstances under which many of the prosecution's exhibits were written, and outlined the background against which he believes they should properly be considered. A Pullman officer's statement in one such letter that contracts with the railroads provide that Pullman shall have the exclusive right to provide sleeper service actually applied, the witness declared, to a special situation that developed in negotiations with the "granger roads" at the time when lightweight sleepers were being introduced. Prospective earnings on these roads did not justify extensive allocations of these new cars—each of which cost two to three times as much as the standard car—so Pullman was unwilling to give the railroads unlimited opportunity to demand them.

To meet this restriction the roads sought, and obtained, a contract provision permitting them to get sleeping cars elsewhere



if Pullman did not supply as many modern lightweight cars as they felt they must have. These arrangements provided that the railroads could draw on the Pullman pool only as long as their regular sleepers were furnished by Pullman, and this was the "exclusive" feature stressed by the Department of Justice.

Only by restrictions of this sort is it possible to protect the integrity of the Pullman pool, Mr. Crawford asserted. Any condition that breaks down the full functioning of the pool increases costs, lessens its advantages to the railroads, and tends to destroy the ability of Pullman to stay in business. If the railroads supplied their own lightweight sleepers and drew on the Pullman pool for other equipment the earning power of the pool would be lost, because they naturally would use their own cars on the high revenue runs, leaving the least profitable ones for the pool cars. Each railroad that wants the pool advantages ought to contribute proportionately to its support, the witness insisted, and Pullman would commit business suicide if it let the pool be undermined.

In general, its contracts give Pullman both the right and the obligation to supply sleeper service on the railroads, Mr. Crawford pointed out, and it could not remain in business if it yielded the right and retained the obligation. Any claim that Pullman will service only the cars it furnishes is contrary to the evidence, he declared, as instances have been cited where it operates cars manufactured by others, and it participates in through line services along with the Canadian railroads, which provide their own sleepers. But it is opposed to non-standard, "tailor-made" trains because (1) their cars cannot readily be replaced when repairs are necessary, (2) the number of cars in the train cannot conveniently be adjusted to fluctuating demands for service, and (3) construction costs are higher per car than for equivalent cars of standard pattern produced in large lots. Again he made the point that every such departure from uniform conditions weakens the effectiveness of the Pullman pool.

Turning to the contention that Pullman requires that railroad contracts expire on different dates in order to prevent an opposition service from getting started on a group of roads, the witness referred to a number of instances where negotiations for new terms were conducted between Pullman and groups representing several lines of similar operating characteristics. Thus, he said, new contracts were worked out at the same time with the New York Central and the Pennsylvania. The "gran-ger roads" in the northwest all settled on new terms together, and so did the lines serving the southeastern states. While the formal contracts were dated to continue from the expiration of the individual contracts they replaced, they actually were negotiated with a number of roads at the same time, and while such conversations were going on Pullman was continuing service without any contract or any protection against the introduction of a competitor beyond that resulting from the economic advantages to the railroads of the Pullman pool. Moreover, he added,

### Railroads Spent \$11,257,281 for Advertising in 1941

Class I railroads in 1941 spent \$11,257,281 for advertising, as compared with \$11,704,335 in 1940 and \$12,083,783 in 1939, according to a compilation prepared by the Association of American Railroads from reports to the Interstate Commerce Commission. Of the 1941 expenditures for advertising space, newspapers received 70.8 per cent; magazines, 24.9 per cent; and radio, 4.3 per cent.

any railroad could take advantage of the contract provision that through routes might be established in conjunction with lines not served by Pullman and under it establish its own sleeping car service without losing Pullman service on the joint-line operations.

In a discussion of terms in contracts under which a railroad can buy cars from Pullman if it elects to set up its own sleeping car service, Mr. Crawford drew a distinction between the terms applying to modern lightweight cars and to the older standard cars, pointing out that the railroad was obligated to buy the lightweight cars but had a privilege it was not required to exercise in the case of the standard cars. The terms are influenced by this situation, by the standard depreciation practices established by the Interstate Commerce Commission, and by the peculiar nature of a sleeping car as a piece of property which is of no value to anybody—except as scrap—unless an opportunity is provided for it to operate on a railroad.

Present contracts are not unduly favorable to Pullman as they would tend to be if the unrestrained monopoly pictured by the Department of Justice in fact existed, Mr. Crawford asserted. For example, Pullman's investment would be better protected by the old long-term contracts than it is by the five-year contracts under which it operates. Moreover, the most important factor determining whether sleeper operations show a profit or a loss—control of the number of cars in service on any train or line—is established by the railroads, not by Pullman. If he could impose terms on any railroad he would want a guaranteed minimum return before he committed himself to meet an unlimited demand for service, but he never had been able to get such terms in a contract.

Evidence that Pullman has steadily introduced modern equipment is found, Mr. Crawford said, in the fact that over 450 standard sleepers have been remodeled to include private rooms. All the cars could not be rebuilt at once, so there have been instances where Pullman could not supply such cars to meet every demand, but they had spent about 10 million dollars trying to do it. The same practical conditions applied, he added, to the introduction of high-speed betterments—that is, rubber in-sets in the running gear, tight-lock couplers, rubber diaphragms, etc., as well as redesigned interior furnishings.

At the end of 1940 slightly over 6 per

cent of all Pullman cars were of modern lightweight construction, said Mr. Crawford, as compared with 3.7 per cent of all railroad-owned passenger cars. The average age of Pullman cars was just over 18 years, of railroad-owned passenger cars, just over 21 years. Forty-seven per cent of the railroads' cars were over 25 years old, while only 22 per cent of Pullman's were over that age, and nearly all of them were normally in tourist service.

### Transportation Association Moves to New Quarters

The Transportation Association of America has moved its general offices to 105 West Adams street, Chicago.

### Resigns as Secretary of Western Railway Club

Miss Lorene Kindred has resigned as secretary of the Western Railway Club, Chicago, after nearly eight years' service in this capacity with this organization.

### I. C. C. Service Order No. 78

Because of a bridge washout near Lennoxville, P. Q., Canada, the Interstate Commerce Commission on June 15 issued Service Order No. 78 directing the Canadian National and Grand Trunk to disregard routings and forward traffic between Montreal and Portland, Me., by the most available open routes.

### S. P. Trucking Subsidiaries to Merge Operations

The Pacific Motor Trucking Company, a Southern Pacific trucking subsidiary, has asked the Interstate Commerce Commission for authority to acquire all the assets and operating rights of the Pacific Truck Express, another S. P. subsidiary. The Pacific Truck Express operates a trucking service between Portland, Ore., and South San Francisco, Calif.

### Charlotte Traffic Club Officers

At an election held May 29 the following officers were chosen by the Charlotte, N. C., Traffic and Transportation Club: President, W. P. Hickey, Assistant General Freight Agent, Seaboard Air Line; first vice-president, W. E. King, F. & R. Coal & Oil Co.; second vice-president, E. E. Baker, Miller Motor Express; secretary-treasurer, E. A. Woolen, chief clerk, C. & O.

### T. P. & W. Labor Case Adjourned to June 29

Because of the Brotherhoods' objection to an exhibit which was prepared by the Office of Defense Transportation and which showed that the actual pay for switch tenders, hostlers, helpers, car inspectors and train service employees on the Toledo, Peoria & Western would have amounted to \$56,711 in April compared with the actual figure of \$18,478 had rates and rules proposed by the Brotherhoods been in effect, the hearings held at Chicago on June 10 and 11 were adjourned to enable the Brotherhoods to study the exhibit.

As reported in the *Railway Age* of June 13, the Brotherhoods had contended that proposed rules had been misinterpreted and

that consequently the figure of \$56,711 was 55 per cent too high. Interpretations of the rules were made by George Voelkner, assistant federal manager; H. H. Best, superintendent, and W. A. Weise, comptroller, who are meeting with the Brotherhoods' representatives at Peoria, Ill., to facilitate their study of the exhibit. June 29 was set by Justice Hilliard as the tentative date for reconvening the hearings.

### March Bus Revenues 63.4 Per Cent Above 1941

Class I motor carriers of passengers reported March revenues of \$16,455,910 as compared with \$10,072,074 in March, 1941, an increase of 63.4 per cent, according to the latest compilation prepared by the In-

solidators and Forwarders Institute, Inc., and all forwarders subject to Part IV have been invited to become members.

G. Morrow, who was associated with its predecessor organization, has been elected executive secretary and commerce counsel of the Institute; and he "will be the acting head of the organization." Morris For-gash, president of the Universal Carloading & Distributing Co., is chairman of the board of governors, and W. J. H. McEntee, vice-president of Acme Fast Freight, is treasurer.

The statement announcing the formation of the new organization paid tribute to Chairman Lea of the House committee on interstate and foreign commerce for his "tireless and persistent" work on the for-

	Passenger revenue		Passengers carried	
	March, 1942	March, 1941	March, 1942	March, 1941
New England Region .....	\$685,536	\$427,384	1,809,411	1,118,351
Middle Atlantic Region .....	1,731,791	1,191,999	3,741,643	2,640,227
Central Region .....	2,574,916	1,652,233	4,279,693	2,917,679
Southern Region .....	4,468,917	2,759,357	5,703,567	3,673,941
Northwestern Region .....	509,881	340,893	429,747	316,808
Mid Western Region .....	1,425,498	836,000	1,168,408	716,376
Southwestern Region .....	2,472,329	1,378,466	2,984,295	1,596,285
Rocky Mountain Region .....	166,297	93,236	117,731	73,704
Pacific Region .....	2,420,745	1,392,506	3,046,470	2,009,726

terstate Commerce Commission's Bureau of Statistics from 144 reports representing 149 carriers. Passengers carried increased 54.6 per cent, from 15,063,097 to 23,280,965.

The breakdown by regions of the bus revenue and traffic figures, which exclude data on charter or special party service, is given in the accompanying table.

### Canteen Opened in Chicago Union Station

A canteen for men in the armed forces has been opened in the Chicago Union Station, opposite the United Service Organization lounge in the east end of the station concourse, for the exclusive use of soldiers, sailors, marines and members of the coast guard in uniform. Sandwiches, soft drinks, light refreshments, cigarettes, tobacco, toilet articles, films and other items are being sold at cantonment canteen prices.

### No More Free Transcripts in I. C. C. Cases After July 1

Effective July 1, the Interstate Commerce Commission has rescinded Rule XVI of its Rules of Practice, which provides for the furnishing of free copies of transcripts of testimony in complaint and investigation and suspension proceedings. From the first of next month, "no free copies of the transcript will be furnished to any party to any proceeding," said a June 10 announcement from I. C. C. Secretary W. P. Bartel.

### Regulated Freight Forwarders Form New Association

Freight forwarders subject to the recently-enacted Part IV of the Interstate Commerce Act have formed the Freight Forwarders Institute "to deal with problems arising in connection with the administration of the new law." The new organization with headquarters at Washington, D. C., is successor to the Freight Con-

warder regulatory legislation. Also, the statement said that enactment of Part IV not only gives the forwarder recognition "as a well established and essential transportation agency," but in addition it "gives meaning to the term 'coordination,' and to the methods by which freight forwarders conserve equipment, eliminate the wasted motion in transportation, and knit together the far-flung transportation media of the country whatever they may be."

### Trainload Rate on Coal

A proposal of the Illinois Central and the Chicago & Illinois Midland to establish a \$1.30-per-ton rate for shipments in minimum quantities of 2,500 tons of bituminous coal from four Peabody Coal Company mines in the Springfield, Ill., group to three Chicago generating plants of the Commonwealth Edison Company should be exempted from an outstanding Interstate Commerce Commission order prescribing a carload rate of \$1.65 (later increased to \$1.75) per ton on coal movements in the same territory. This is the recommendation of Examiner R. N. Trezise in a second report proposed on hearing upon petition for modification of the order in 23130.

The commission's outstanding order in the proceeding prescribed the \$1.65 carload rate to remove discrimination against interstate commerce created by rates prescribed by the Illinois Commerce Commission. In their preparations for the establishment of the \$1.30 rate per ton for the "trainload" movements the railroads petitioned for modification of the 23130 order. "Succinctly stated," as Examiner Trezise put it, "the question presented is whether the intrastate quantity rate proposed would unjustly discriminate against interstate commerce . . . in the manner found in the second supplemental report with respect to the rate on bituminous coal, in carloads, from the Springfield group to Chicago." The examiner thinks that it would not.

As indicated above, he recommended that the commission "exempt the proposed quantity rate from the order . . . for the sole purpose of clarity inasmuch as a hearing has been held on the petition, or as an equivalent find that the transportation circumstances and conditions on the proposed traffic would be substantially different from those on the traffic embraced within the outstanding order in this proceeding, and on that ground deny the petition."

### Freight Car Loading

Loadings of revenue freight for the week ended June 13 totaled 832,726 cars, the Association of American Railroads announced on June 18. This was a decrease of 21,963 cars, or 2.6 per cent, below the preceding week, a decrease of 30,248 cars, or 3.5 per cent, below the corresponding week in 1941, but an increase of 119,805 cars, or 16.8 per cent, above the same week in 1940.

As reported in last week's issue, loadings of revenue freight for the week ended June 6 totaled 854,689 cars, and the summary for that week, compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings For Week Ended Saturday, June 6			
District	1942	1941	1940
Eastern .....	158,468	184,436	149,169
Allegheny .....	185,678	190,233	149,871
Pocahontas .....	57,170	57,096	47,945
Southern .....	124,422	121,342	97,972
Northwestern ..	141,616	132,371	114,477
Central Western	115,626	115,758	98,933
Southwestern ..	71,709	51,704	44,525
Total Western Districts ....	328,951	299,833	257,935
Total All Roads	854,689	852,940	702,892
Commodities			
Grain and grain products .....	35,871	35,562	28,161
Live stock .....	12,484	10,264	10,658
Coal .....	163,734	151,478	118,558
Coke .....	13,885	12,922	9,760
Forest products ..	53,319	42,168	34,326
Ore .....	92,453	78,522	66,099
Merchandise l.c.l.	97,587	159,712	148,259
Miscellaneous ..	385,356	362,312	287,071
June 6 .....	854,689	852,940	702,892
May 30 .....	795,756	801,783	639,120
May 23 .....	837,748	866,027	687,480
May 16 .....	839,052	860,802	679,065
May 9 .....	839,253	837,149	680,628

Cumulative Total,  
23 Weeks ... 18,528,925 17,193,615 14,720,474

In Canada.—Carloadings for the week ended June 6 totaled 67,539 as compared with 63,386 in the previous week and 64,025 in the corresponding week last year, according to the Dominion Bureau of Statistics.

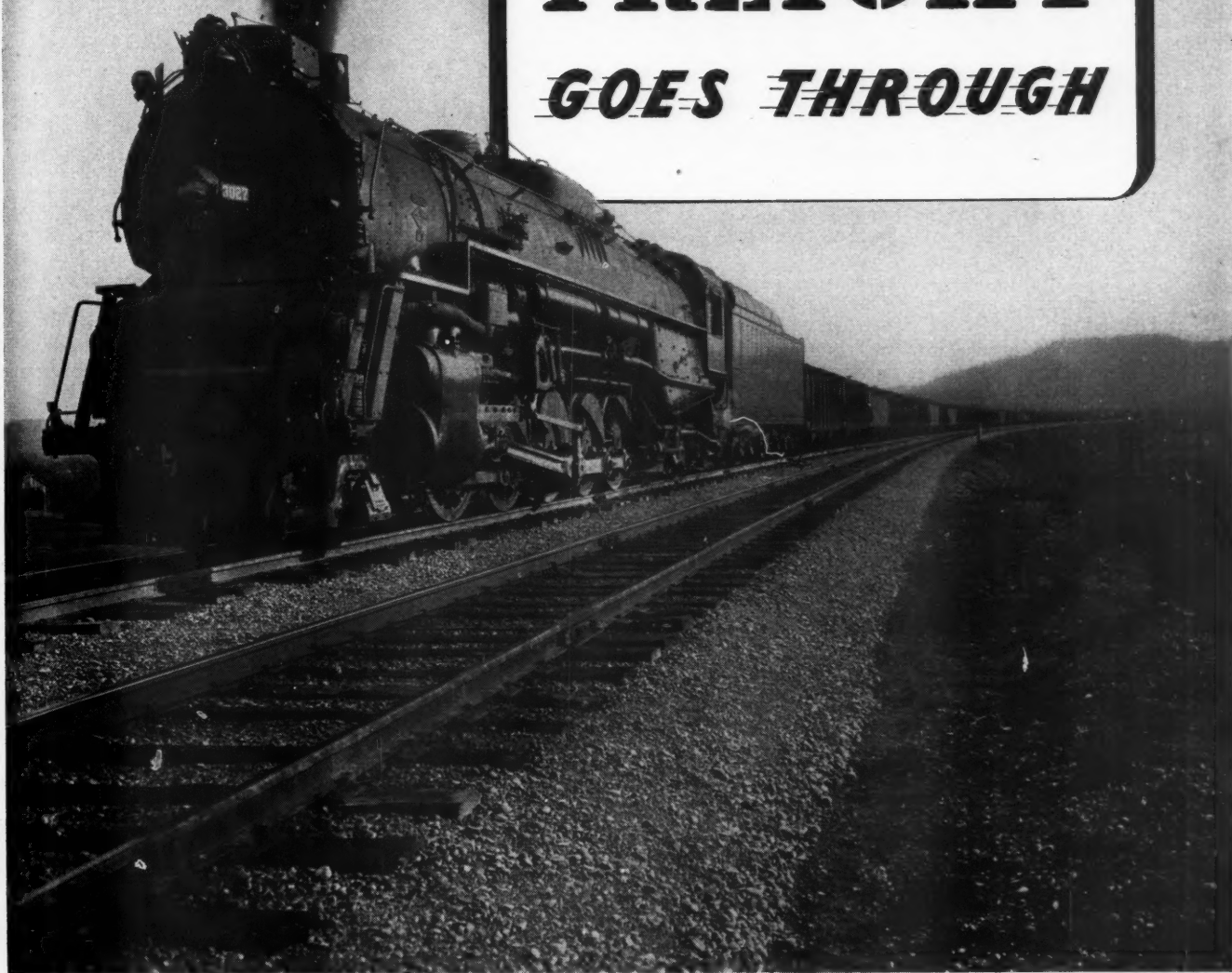
	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
June 6, 1942 .....	67,539	31,341
May 30, 1942 .....	63,386	31,684
May 23, 1942 .....	66,059	32,315
June 7, 1941 .....	64,025	29,409
Cumulative Totals for Canada:		
June 6, 1942 .....	1,440,354	734,439
June 7, 1941 .....	1,301,881	665,404
June 8, 1940 .....	1,126,861	562,964

### District Court Rules Red Caps' Tips Are Wages

Tips accepted for service must be computed as part of a red caps' wages under the Illinois minimum wage law, the Federal District court at Chicago ruled on June 15 in dismissing a suit for \$1,600,000 against eight railroads by the International Brotherhood of Red Caps on behalf of 1,068 men employed in Chicago railroad



# THE FREIGHT *GOES THROUGH*



at passenger speeds, 24 hours a day . . .  
... with Modern, High-Speed Lima Power

LIMA LOCOMOTIVE WORKS



INCORPORATED, LIMA, OHIO

stations. The red caps sued in 1939, claiming double compensation allowed by Illinois law where an employee has been paid less than a fixed minimum wage. Under an agreement among the unions and the railroads the red caps were to receive an hourly wage of 25 cents in 1939 and 30 cents the next year. The carriers contended tips were a part of the wages.

"There is no proof," the court stated, "that the plaintiffs did not receive and retain the compensation paid to them for their services, whether that compensation be considered as tips or not. Assuming that the compensation should be considered as tips within the meaning of the Illinois statute, the plaintiffs received and kept them."

### C. & O. Shopmen Give Up Vacation Time, But Get Pay

Approximately 7,000 shop employees of the Chesapeake & Ohio have agreed to forego vacations this year, it was announced last week, in order to keep operations going at full speed during the present emergency. The railroad management has agreed to pay them at the regular rate for the vacation time they are giving up, in addition to the wages they earn at work during the period the vacations would have covered.

### Cook Will Head Mediation Board During Next Fiscal Year

Following its usual policy of rotating the chairmanship, the National Mediation Board has designated George A. Cook to act as chairman for the fiscal year beginning July 1. David J. Lewis has been chairman during the current fiscal year.

The Board has also announced the appointment of George S. MacSwan of Natick, Mass., to its staff of mediators. Mr. MacSwan, who was appointed from the Civil Service Commission's eligible list, has been in engine service with the Boston & Albany.

### Pick-up and Delivery Guide Prepared for Truckmen

The Committee on the Prevention of Loss and Damage of the Freight Claim division of the Association of American Railroads has prepared a guide which is designed to inform pick-up and delivery truckmen of the different phases of railroad freight handling. The division plans to circulate the guide among the more than 20,000 railroad delivery points which use pick-up and delivery service. Instructions in the guide cover receiving, preparation of trucks, loading, unloading, delivering, notations and prevention of damage.

### Show-Cause Order on Red Cap Charges at Dayton

The Interstate Commerce Commission has instituted an investigation in Docket No. 28842 to determine why it should not enter a formal order requiring the Dayton Union to publish and file a tariff covering its charges for the service rendered by its red cap porters at the passenger station at Dayton, Ohio.

Recently, Division 3, in the case of *Ida M. Stopher v. Cincinnati Union Terminal*

Company, Inc. found that the red cap services at the Cincinnati Union Station are subject to regulation by the commission and entered an order requiring the company to file a tariff covering the charge in accordance with section 6(1) of the Interstate Commerce Act. The notice of the commission's action in instituting the investigation cited Division 3's decision in the Cincinnati case. The show-cause order is returnable on or before July 1, 1942.

### Plan to Use New York "L" Cars at Illipolis

Fifty-five old New York elevated cars will be purchased by the government for use by the Illinois Terminal Railroad Company in the Illipolis munitions plant area if the cars meet the safety standards of the Illinois Commerce Commission. Additional passenger equipment is needed to transport workers employed at the munitions works located midway between Decatur, Ill., and Springfield. The government, it is understood, is willing to spend \$70,000 for the 55 cars. The cars were formerly used on an elevated line in New York that has been discontinued.

### Mid-West Roads Ask Meat Rate Probe

Fifteen mid-western railroads have asked the Interstate Commerce Commission to institute an investigation to determine the proper charges applicable from May 1, 1939, to July 1, 1940, for the transportation of fresh meats, and fresh meats salted, in carloads, or in carloads mixed with other meat products, from and to the points in eastern trunk line and New England territories. The petition goes on to point out that at the present time some shippers have sued the carriers for a total of \$514,652 in overcharges, while the railroads have counterclaimed for a total of \$63,953.

### B. & M. Men Get Some Novel Reading Matter

Up on the Boston & Maine officers and men were too busy this spring for the usual series of Courtesy Meetings, so a booklet is being distributed to all employees who have contacts with the public to remind them that courtesy and tact are more important than ever under wartime conditions.

Bearing the arresting title, "We're Going to Have a Hell of a Time," the twelve-page illustrated booklet develops the problem of transportation shortages from the passenger's viewpoint, then suggests what employees can do to make the traveler feel he is lucky to be traveling at all. "If we're going to hold our friends—and make new ones—under these trying circumstances, we're going to need the patience of Job and the wisdom of Solomon," the reader is told. "And that's our job, right now, yours and mine. We've got to serve Uncle Sam first, to the best of our ability and then some, and at the same time we've got to try to satisfy our customers with something that we *know* isn't satisfactory."

The booklet's final paragraph suggests one reason why it was prepared. "It's no easy task that is ahead of us, and we may as well make up our minds to it. But

through it all, we've got to remember that some day the clouds of war will lift, and we'll go back to doing a normal job of railroading. When that time comes, our prosperity, even our very existence as a railroad, may depend upon how well we do the job now—how well we conduct ourselves during this 'hell of a time.'"

### Central Western Board Meets at Denver

"Keep 'Em Rolling" was the theme of the twentieth annual and forty-fifth regular meeting of the Central Western Shippers Advisory Board at Denver, Colo., on June 9 and 10. Speakers at a luncheon included Leslie A. Miller, regional director of the War Production Board at Cheyenne, Wyo.; Col. J. M. Johnson of the Interstate Commerce Commission, representing the government; E. G. Plowman, traffic manager of the Colorado Fuel & Iron Corporation, Denver, representing producers and industry; and Henry Swan, trustee of the Denver & Rio Grande Western, representing transportation. Officers elected for the ensuing year were: General chairman, John A. Reed, president of the Wyoming Wool Growers Association, Kemmerer, Wyo.; vice chairman, Frank J. Rebhan, traffic manager of the American Crystal Sugar Company, Denver, Colo.; and general secretary, W. M. Wharton, manager of the transportation department of the Omaha Chamber of Commerce, Omaha, Neb.

### May Operating Revenues 35.5 Per Cent Above Last Year

Preliminary reports from 89 Class I railroads, representing 81.5 per cent of total operating revenues, made public June 15 by the Association of American Railroads, show that those roads, in May, had estimated operating revenues amounting to \$481,560,054, compared with \$360,649,415 in the same month of 1941, or an increase of 33.5 per cent.

May freight revenues of the 89 roads amounted to \$391,179,639 compared with \$301,151,330 in May, 1941, or an increase of 29.9 per cent. Passenger revenues totaled \$59,366,778, compared with \$31,390,160 in May, 1941, or an increase of 89.1 per cent.

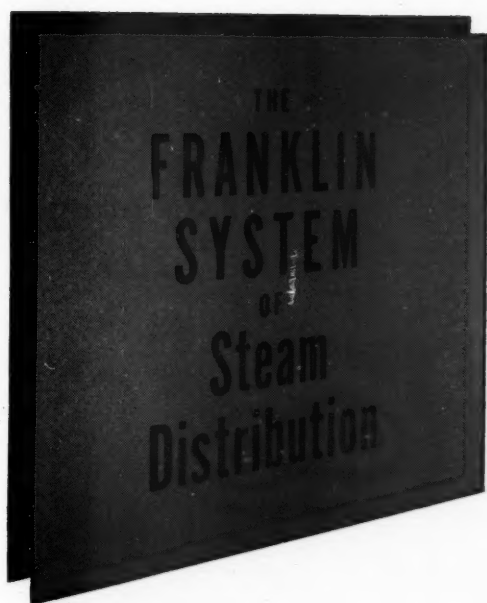
### David Van Alstyne Dies

David Van Alstyne, at one time superintendent motive power of the Chicago Great Western and mechanical superintendent of the Northern Pacific and later a vice-president of the American Locomotive Company, died of an acute heart attack at Wilton, N. H., on June 7.

Mr. Van Alstyne was born at Louisville, Ky., July 14, 1865, and was graduated from the Massachusetts Institute of Technology in 1886. He entered the service of the Louisville & Nashville as a machinist apprentice remaining with that company for eight years as a machinist, locomotive fireman, and roundhouse foreman. He engaged in the foundry business for three and a half years and then served for a year as master mechanic on the Louisville, Henderson & St. Louis. He headed up the mechanical department of the Chicago Great Western from 1899 to May 26, 1904, when



# *Step up the train load-speed capacity of your existing locomotives*



Today the railroads need train load-speed capacity more than ever before. Yet, due to the restrictions in steam distribution of the conventional design piston valve and valve gear, locomotives are capable of realizing only 66⅔ % of their potential train load-speed capacity. The remaining 33⅓ % is dormant.

Release this potential power for useful work by installing The Franklin System of Steam Distribution on your existing power.



**FRANKLIN RAILWAY SUPPLY COMPANY, INC.** NEW YORK CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

he became mechanical superintendent of the Northern Pacific. Mr. Van Alstyne was made vice-president in charge of manufacture of the American Locomotive Company in 1907. From 1910 to July, 1917, he was engaged in a consulting capacity by several organizations, including the New York, New Haven & Hartford, of which he was appointed assistant to the vice president in September, 1914. In 1917 he returned to the American Locomotive Company and served it in various capacities, retiring September 1, 1930, since which time he has lived at Wilton, N. H.

### N. Y. C. Shop Men Want Pay Raise

Delegates to the annual convention of the Federated Shop Crafts representing shop workers on the New York Central system at their meeting in Albany, N. Y., on June 12 adopted a resolution favoring a vacation of two weeks instead of one and another asking an increase of twenty cents an hour in the present basic hourly wage rate, which in the case of mechanics is 96 cents. They also voted not to demand double time pay for overtime work on Sundays and holidays. Another resolution urged that all railroad repair and construction work be allotted to railroad shops ahead of war work. Railway officers report that as yet no demands have been presented embodying any of these measures.

### Long Island Helps Out Motorists on Short Rations

In the summer timetable of the Long Island, which goes into effect June 21, a number of additions and changes have been made for the convenience of workers in war industries and for the benefit of travelers who have been forced by gasoline and tire rationing to forego regular use of their automobiles. For example, an additional train leaving New York at 5:37 p. m. daily, except Saturday and Sunday, will operate to Montauk for the convenience of commuters who were in former years carried to Speonk, then continued their trip to Montauk, more than 40 miles beyond, by automobile.

The schedule provides regular commuting service for war workers on Sundays and holidays and, as in former years, gives additional service to the beaches.

### Rear-end Collision on S. A. L.

Eight passengers were killed and eight passengers and two employees were injured in a rear-end collision on the main line of the Seaboard Air Line shortly after midnight on June 14. All of the passenger casualties were in the observation car of the southbound "Silver Meteor," which had been stopped for orders at Kittrel, N. C., 36 mi. north of Raleigh, where it was struck by a following freight train.

Preliminary reports indicated that the 17-car passenger train was running about an hour and a half late. The rear end of the observation car was demolished, but other cars in the train suffered little damage, and it was able to continue on its run. The freight locomotive was considerably damaged, but remained on the track.

Pending full investigation, officers of the road expressed the belief that the block

signal system was functioning properly, though visibility was impaired by fog. No comment was available concerning the death from a pistol wound of H. M. Terrell, division superintendent, which occurred about two hours after the accident. In the coroner's opinion this was suicide, possibly induced by nervous strain.

### Another Provision of Forwarder Act Postponed by I. C. C.

The Interstate Commerce Commission on June 11 issued an order postponing until July 1 the effectiveness of section 409(a) (1) of the Interstate Commerce Act's recently-enacted Part IV which covers the regulation of freight forwarders. Section 409 provides for the 18-month adjustment period during which forwarders must discontinue their joint-rate arrangements with motor carriers, changing over to operations under "assembling" and "distribution" rates which the act authorizes carriers to publish. As noted in the *Railway Age* of June 13, page 1164, the commission on June 8 had issued a previous order postponing other parts of section 409(a).

Later, on June 15, the commission issued a third order, prescribing regulations governing the form and manner in which tariffs of freight forwarders shall be published, filed, and posted.

### Southwest Board Meets at Fort Worth

The Southwest Shippers' Advisory Board held its nineteenth annual and sixtieth regular meeting at Fort Worth, Tex., on June 4. Featuring the meeting was a discussion of the orders of the Office of Defense Transportation and the Interstate Commerce Commission pertaining to railroads and motor carriers, and pertinent factors relating to the season's grain crop. At a luncheon meeting J. W. Barriger, associate director of the Division of Railway Transport of the ODT, spoke on railroad war transportation. Officers elected for the ensuing year were as follows: General chairman, Joseph P. Gudger, traffic manager of the Gulf Companies, Houston, Tex.; alternate chairman, Marshall L. Dickerson, traffic manager of the Southern Advance Bag & Paper Co., Hodge, La.; and general secretary, Wallace Green, traffic manager of the Huey & Philp Hardware Co., Dallas, Tex.

### Koppers Company Division Receives Navy "E" Burgee

The Navy "E" burgee was awarded the Bartlett Hayward division of the Koppers Company, Pittsburgh, Pa., on June 13, for the excellence and speed of their production of catapults for launching aircraft from navy vessels. Rear Admiral John H. Towers, U. S. N., chief of the United States Navy, Bureau of Aeronautics, headed a delegation of naval air officers from Washington to Baltimore to pay their respects to employees of the Koppers Company, Bartlett Hayward division. This is the third award made on recommendation of the Naval Bureau of Aeronautics. Seven thousand employees, members of their families and other guests witnessed the 30-min. ceremony at Baltimore, attended an open

house and viewed exhibits of the naval catapults for which the award was made, 37 mm. and 40 mm. anti-aircraft gun carriages and 25,500 and 35,500 lb. bronze propellers for Liberty ships and tankers of the Maritime Commission. Governor Herbert R. O'Connor, of Maryland, and Mayor Howard W. Jackson, of Baltimore, spoke to the gathering while Frazier Hunt, radio commentator, was master of ceremonies. Walter F. Perkins, vice president of Koppers Company and general manager of the Bartlett Hayward division, received the burgee from Rear Admiral Towers in behalf of the employees.

### I. C. Handles Record Volume of Freight

In the first four months of 1942 the Illinois Central handled the greatest volume of freight traffic for any comparable period in the history of the railroad, according to J. L. Beven, president, in a report to employees. "Our daily averages of net ton-miles of freight," he said, "rose from 48 million in December to 53 million in January, 57 million in February, 59 million in March and 65 million in April. To meet the petroleum shortage on the eastern seaboard, our tank car miles rose from 7 million in March, 1941, to 27 million in March, 1942. Our government bills of lading on received traffic alone were nearly twice as large in number and nearly six times as large in value for the single month of March, 1942, as for the entire year of 1932. Military travel on the Illinois Central for the first three months of 1942 was more than twice as large as for the corresponding months of 1941."

### N. W. Univ. Opens Its Tech. Institute

(Continued from page 1216)

awarded to noted industrial, educational and governmental leaders, including the honorary degree of Doctor of Laws, granted in absentia to Walter P. Murphy.

A large number of railroad executives served on the honorary advisory committee for the dedication as follows:

L. W. Baldwin, chief executive officer, Missouri Pacific; Sir Edward Beatty, chairman, Canadian Pacific; J. L. Beven, president, Illinois Central; T. E. Bond, president, Elgin, Joliet & Eastern; G. D. Brooke, president, Chesapeake & Ohio; Champ Carry, executive vice-president, Pullman Company; M. W. Clement, president, Pennsylvania; D. A. Crawford, president, Pullman Company; C. McD. Davis, executive vice-president, Atlantic Coast Line; C. E. Denney, president, Northern Pacific; L. F. DeRamus, trustee-chief executive officer, Chicago, Indianapolis & Louisville; E. M. Durham, Jr., chief executive officer, Chicago, Rock Island & Pacific; Lyman Delano, chairman of the board, Atlantic Coast Line; E. S. French, president, Boston & Maine; F. J. Gavin, president, Great Northern; F. G. Gurley, vice-president, Atchison, Topeka & Santa Fe; G. I. Haight, trustee, Chicago, Milwaukee, St. Paul & Pacific; W. M. Jeffers, president, Union Pacific; P. H. Joyce, president and chairman of executive committee, Chi-

Continued on next left-hand page



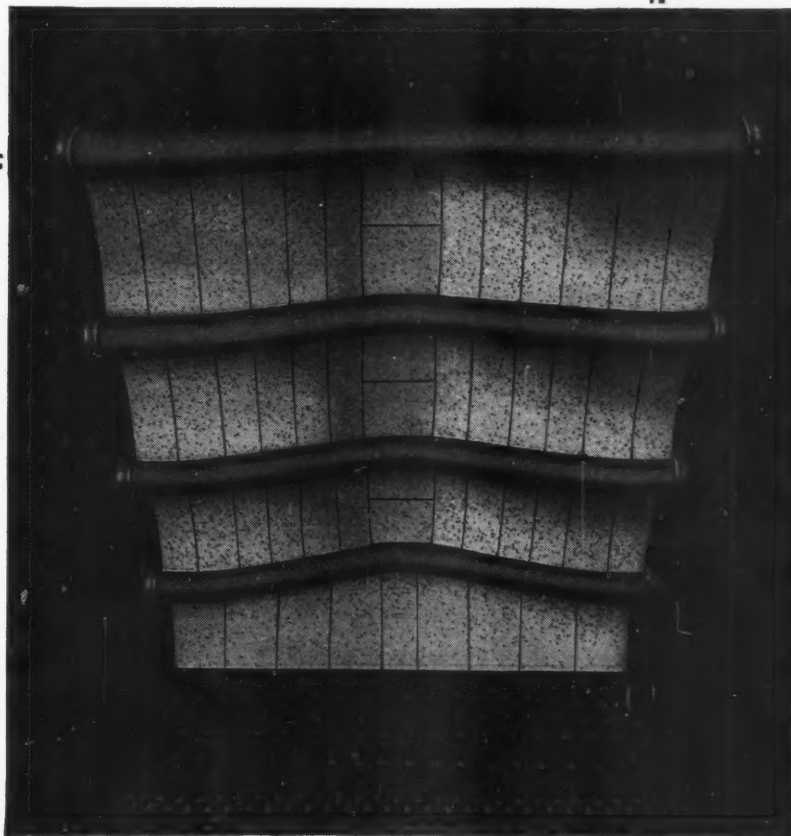
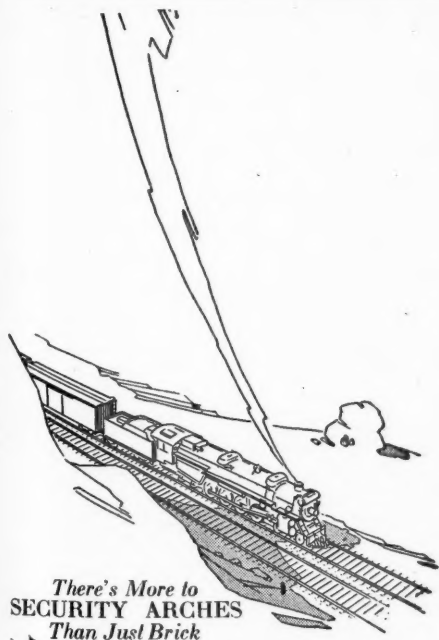
# FUEL ECONOMY

## is maximum ton-miles from every pound of fuel!

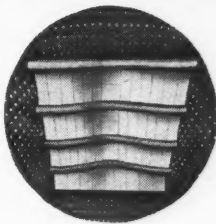
Security Brick Arches are correctly designed to compel every pound of fuel to develop its share of full boiler capacity.

Security Arch Brick are made from selected clays and carefully burned to assure maximum arch life in the locomotive firebox.

By every standard of value Security Arch Brick assures maximum economy.



**HARBISON-WALKER  
REFRATORIES CO.**  
*Refractory Specialists*



**AMERICAN ARCH CO.  
INCORPORATED**  
60 EAST 42nd STREET, NEW YORK, N. Y.  
*Locomotive Combustion  
Specialists*

cago Great Western; J. M. Kurn, trustee, St. Louis-San Francisco; E. E. Norris, president, Southern; C. T. O'Neal, president, Chicago & Eastern Illinois; H. S. Palmer, trustee, New York, New Haven & Hartford; N. B. Pitcairn, president, Washash; J. S. Pyeatt, president, Denver & Rio Grande Western; H. A. Scandrett, trustee, Chicago, Milwaukee, St. Paul & Pacific; M. S. Sloan, chairman of the board and president, Missouri-Kansas-Texas; C. M. Thomson, trustee, Chicago & North Western; R. C. Vaughan, president, Canadian National; R. L. Williams, chief executive officer, Chicago & North Western; R. E. Woodruff, president, Erie, and R. B. White, president, Baltimore & Ohio.

### 1941 Intercity Bus Revenues

Class I intercity bus companies reported for 1941 gross revenues of \$164,244,268, as compared with \$126,680,350 in 1940, an increase of 29.7 per cent, according to data just made public by the Interstate Commerce Commission. The 1941 net operating revenue was \$30,454,985, as compared with 1940's \$16,600,038.

### Reports on Burlington Motor Carrier Applications

Rejecting protests of other railroads and their affiliates, the Interstate Commerce Commission, Division 5, has authorized the Burlington Transportation Company, subsidiary of the Chicago, Burlington & Quincy, to continue bus operations on its route between Salt Lake City, Utah, and San Francisco, Calif. The protestants included the Southern Pacific, Chicago & North Western, Pacific Greyhound Lines (S. P. affiliate), and Interstate Transit Lines (Union Pacific affiliate.)

The Burlington instituted the Salt Lake City-San Francisco operation in September, 1925, after it had been unable to obtain what it regarded as its proper share of eastbound transcontinental traffic interchanged at the former point. It attributed its difficulties to an interchange agreement covering the Salt Lake gateway which had been entered by Pacific Greyhound and Interstate Transit. "Toward the close of the hearings," as the report put it, Pacific and Interstate made an offer "which was intended to open the gateway"; but that offer was rejected by Burlington which did not think it conceivable that Pacific, "in the circumstances, would exercise impartiality between it and Interstate."

The commission agreed with Burlington, referring to evidence which indicates "an effort on the part of Pacific Greyhound and Interstate, supported by Southern Pacific and Union Pacific, to establish a bus transportation monopoly, and to divide between and reserve for themselves the transcontinental bus traffic to and from the San Francisco Bay area and northern California, via the Salt Lake City gateway." Such a situation "is not in the public interest," the commission observed after having noted that Burlington "today affords the only competition for this combination."

In another decision, Division 5 denied the application of Burlington for common-

carrier trucking certificates covering operations over various routes between points in Illinois, Iowa, and Missouri. At the same time it granted certificates covering such operations over six other routes between points in Iowa. Also, the commission has made public a proposed report wherein Examiner Fabian C. Cox has recommended conditional approval of the purchase by Burlington of operating rights and property of Hartwell Truck Lines, Inc., in the Denver, Colo.-Billings, Mont., area.

### Restrictions May Cause Rationing of Transportation

Rationing of transportation will come only as a result of restrictions placed upon the railroads which prevent expansion of their facilities and their capacity, according to Martin W. Clement, president of the Pennsylvania, in an address on problems of transportation made at an educational and industrial conference held in conjunction with the dedication of the Technological Institute of Northwestern University at Evanston, Ill., on June 15. On the following day the honorary degree of Doctor of Business Administration was conferred upon Mr. Clement by the university.

"Whether railroad transportation in the future will continue to move on," Mr. Clement continued, "will depend on how much more war traffic the railroads are called on to carry and the restrictions that are placed on the railroads. The building of cars has been practically stopped. The acquisition of engines is being limited. The building of facilities is slowing down under priorities. Such are the fortunes of war."

"Without too many restrictions, the railroads can go on handling the load that is placed upon them to the end of the war, just as they have since the beginning. Rationing of transportation will come only as a result of restrictions placed upon the railroads which prevent expansion of their facilities and their capacity."

"And, lest we forget, lest you overlooked it—because it is the only industry so doing—all these improvements on the railroads, all this building up of their facilities, their engines, their cars, their capacity, all these millions, these billions—have been provided for entirely out of the funds of the railroads themselves. They have seen each of their subsidized competitors in difficulties under war conditions while they themselves have gone on—a strictly regulated industry; a heavily taxed industry, moving without noticeable effort the largest volume of traffic the roads ever carried—fulfilling a destiny that could be accomplished only by the ingenuity of American transportation men, and the industrial men allied with them."

"The railroads are handling wartime transportation, handling it successfully and efficiently on the basis of their own resources. This is worth emphasizing because today, when the thought is everywhere in the air that everything should be done by the government, we have here an outstanding illustration and proof of what private industry can accomplish. The railroads are moving every ton of freight and all the passengers, including hundreds of thou-

sands of soldiers, that have to be moved in the war effort. There has been no breakdown and no failure, and in the light of actual experience there is nothing whatever to suggest that any better job would be done, or that as good a job could be done, if the task were entrusted to any other agency than the American railroads themselves."

### House Votes New Bankruptcy Bill

The House, on June 15, passed without a record vote H.R. 7121, which was recently introduced by Representative McLaughlin, Democrat of Nebraska, to reenact chapter 15 of the Bankruptcy Act which provides for voluntary reorganizations of railroad companies. The previous act, which was known as the Chandler Act, expired on July 31, 1940. The Baltimore & Ohio and the Lehigh Valley were the only major roads to effect voluntary interest readjustments under its provisions.

"H.R. 7121," the House judiciary committee wrote in its report on the bill, "is substantially the same as the original chapter 15 of the Bankruptcy Act which was enacted during the first session of the Seventy-sixth Congress and which expired July 31, 1940. Because of the time limitation of the original act very few railroads were able to take advantage of it. Experience has shown the relief afforded by the act to be most beneficial and it is now thought desirable to make the act a permanent part of the bankruptcy law in order that railroads now in need of such relief, as well as those which may need such relief in the future, may have the benefit of the act."

"The purpose of the bill is to enable railroads which are not insolvent and which are fundamentally sound as transportation systems, but which are handicapped financially by maturing obligations or other temporary financial difficulties to enter into agreements with their creditors and security holders for the postponement or modification of obligations, and submit such agreements to the Interstate Commerce Commission and then to courts of bankruptcy for hearings and appropriate action by which such agreements are made effective without impairing the normal operations, employee relations, and the permanent stability of the railroads."

The report goes on to point out that American railroads, generally speaking, may be divided into three groups:

1. Those clearly solvent and in a position to operate successfully.
2. Those clearly insolvent and needing complete reorganization as provided by section 77 of the Bankruptcy Act.
3. Those in temporary financial difficulties and requiring relief, but not the drastic overhauling of their capital structures provided for in section 77.

"This bill, if enacted," the report concludes, "will make available to railroads in the third group, their subsidiaries, and non-carrier corporations liable on the obligations of the debtor railroad the bankruptcy power contained in article I, chapter 8, clause 1 of the Constitution, which permits Congress to establish uniform laws on the subject of bankruptcies."

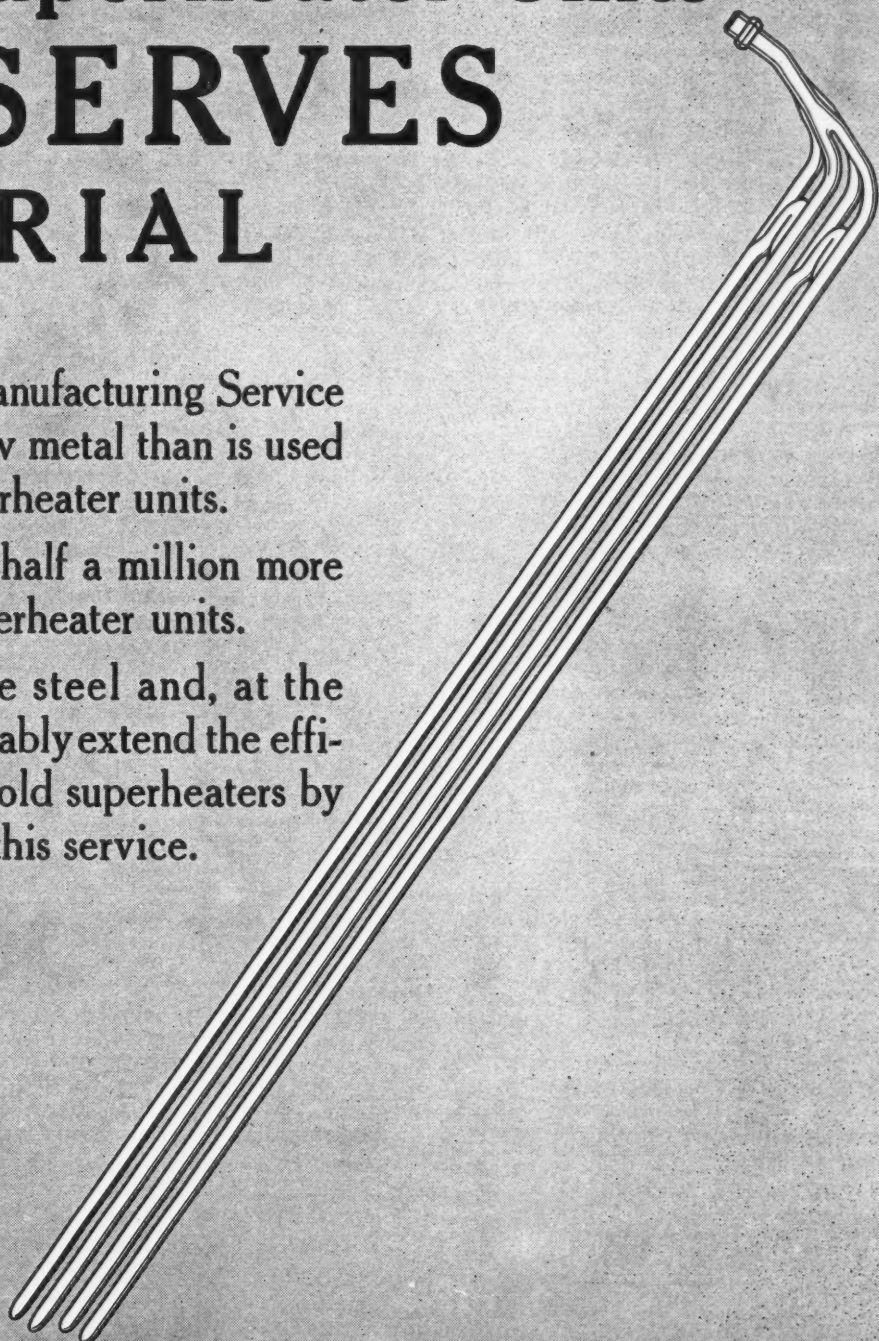


# RECLAMATION of old Superheater Units CONSERVES MATERIAL

The Elesco REmanufacturing Service uses 50% less new metal than is used to build new superheater units.

The service adds half a million more miles to your superheater units.

Help to conserve steel and, at the same time, dependably extend the efficient life of your old superheaters by standardizing on this service.



SUPERHEATERS • FEEDWATER HEATERS  
AMERICAN THROTTLES • STEAM DRYERS  
EXHAUST STEAM INJECTORS • PYROMETERS

THE  
**SUPERHEATER**  
C O M P A N Y

Representative of  
AMERICAN THROTTLE COMPANY, INC.  
60 East 42nd Street, NEW YORK  
122 S. Michigan Blvd., CHICAGO

Montreal, Canada  
THE SUPERHEATER COMPANY, LTD.

# Equipment and Supplies

# Supply Trade

## Most of 18,000 Cars Allocated

Releases reported for majority  
of cars remaining in final  
1942 building program

Releases have been reported for most of the 18,000 new freight cars which were authorized for construction by the War Production Board following its limitation order of April 4. These 18,000 cars, which are in addition to about 9,000 delivered in January and 36,000 authorized by the former Supply Priorities and Allocations Board for construction during the three months, February-April, inclusive, will complete the 1942 car-building program. Construction will immediately follow completion of the cars remaining in the SPAB program.

Breakdown of the final 18,000 by classes of cars authorized is reported to be as follows: 6,131 hopper cars; 5,016 gondola cars; 2,428 flat cars; 2,000 ore cars; 500 covered hopper cars; and 1,925 tank and special type cars. Of the 6,131 hopper cars, 3,396 will be of steel construction and 2,735 of composite wood and steel construction;

of the 5,016 gondola cars, 1,616 will be steel and 3,400 composite.

The accompanying table shows the allocation of these 18,000 cars by railroads and builders based on releases reportedly made by the War Production Board's transportation equipment branch. Certain of the cars on which the matter of design and steel is still in question are listed as unallocated.

## Construction

ATCHISON, TOPEKA & SANTA FE.—The California Department of Public Works has awarded a contract to the Griffith Company, Los Angeles, Cal., for the construction of a grade separation bridge carrying Mission Valley road over the Santa Fe tracks and Pacific Highway (U. S. No. 101) in San Diego county. The bridge will be a continuous reinforced concrete girder type on timber piles with nine 54-ft., one 45-ft. and one 27-ft. spans and two cantilever spans 7 ft. and 13 ft. long. It will provide a divided roadway for four lanes of traffic. Clover leaf ramps and connecting access roads between the two highways will be provided. The total cost of the project will be about \$548,586.

John W. Wiley, formerly with the Hyatt Bearings division of the General Motors Corporation, is now associated with the **Koppers Company**, American Hammered Piston Ring division, on the sale and service of that division's products for the railroads. He will make his headquarters at the company's New York office.

James S. Hearons, assistant manager of sales of the Railroad division of the **Inland Steel Company**, Chicago, has been given a leave of absence, effective June 8, to enable him to serve with the Production division of the War Production Board in Washington. He will work in a consulting capacity as liaison between the railroads and the Board.

W. H. Holcomb, formerly vice-president and general manager of the Pelton Water Wheel Company, San Francisco, Cal., has been appointed assistant to the executive vice-president of the **Baldwin Locomotive Works**. Mr. Holcomb started with the Pelton Water Wheel Company, a subsidiary of the Baldwin Locomotive Works, in December, 1919, as sales en-



W. H. Holcomb

gineer. Later, he was successively manager of the pump department, sales manager, vice-president and sales manager and, since June, 1939, vice-president and general manager. Before joining the Pelton company, he was with the Southern Pacific railroad and the Pacific Telephone & Telegraph Co. in California.

## OBITUARY

**Pierre G. Jenks**, president of the Pullman-Standard Car Export Company and a director of the Pullman-Standard Car Manufacturing Company, died on June 14.

**Louis C. Kuehner**, president of **Handlan, Inc.**, St. Louis, Mo., died in a hospital in that city on June 8 of a liver disease. Mr. Kuehner was born in St. Louis and began work for Handlan when he was 15 years old. Later he was placed on the sales force and rapidly rose to sales manager. He was made president six years ago.

## Reported Allocation of Final 18,000 Freight Cars Authorized for 1942 Construction

Name of Railroad	No.	Type	Builder
Atlantic Coast Line .....	300	Gondola	Bethlehem Steel Co.
Bessemer & Lake Erie .....	100	Flat	Greenville Steel Car
.....	93	Hopper	Pullman-Standard
.....	150	Gondola	Greenville Steel Car
.....	20	Gondola	Pressed Steel
Birmingham Southern .....	86	Gondola	Pullman-Standard
Central of New Jersey .....	246	Hopper	Company Shops
.....	500	Gondola	Bethlehem Steel Co.
Chesapeake & Ohio .....	130	Hopper	American Car & Foundry
Chicago & North Western .....	250	Flat	Pullman-Standard
.....	25	Flat	Company Shops
Chicago, Burlington & Quincy .....	250	Hopper	Company Shops
.....	400	Flat	Company Shops
Chicago, Milwaukee, St. Paul & Pacific .....	2	Flat	Company Shops
Chicago, Rock Island & Pacific .....	300	Flat	Company Shops
Delaware & Hudson .....	80	Hopper	Company Shops
Detroit, Toledo & Ironton .....	50	Flat	Greenville Steel Car
Duluth, Missabe & Iron Range .....	500	Ore	Pullman-Standard
.....	500	Ore	General American
.....	500	Ore	American Car & Foundry
Elgin, Joliet & Eastern .....	500	Gondola	General American
.....	200	Gondola	Ralston
.....	200	Flat	Bethlehem Steel Co.
Great Northern .....	500	Ore	Mount Vernon Car
Louisville & Nashville .....	100	Flat	Bethlehem Steel Co.
Lehigh Valley .....	960	Hopper	Pressed Steel Car
Missouri Pacific .....	570	Gondola	Despatch Shops
New York Central .....	1,100	Gondola	Despatch Shops
.....	303	Flat	Pullman-Standard
New York, Chicago & St. Louis .....	50	Flat	Company Shops
New York, New Haven & Hartford .....	13	Flat	Virginia Bridge
Norfolk & Western .....	200	Hopper	American Car & Foundry
Northern Pacific .....	489	Hopper	Company Shops
Pennsylvania .....	797	Hopper	Company Shops
.....	1,000	Gondola	Greenville Steel Car
.....	22	Flat	Company Shops
Pere Marquette .....	250	Flat	Company Shops
Reading .....	300	Hopper	American Car & Foundry
.....	300	Gondola	Company Shops
St. Louis Southwestern .....	50	Flat	Company Shops
Shippers Car Line .....	3	Flat	Company Shops
Southern Pacific .....	90	Gondola	Company Shops
.....	10	Flat	Company Shops
Virginian .....	536	Hopper	Company Shops
.....	100	Gondola	Company Shops
Wabash .....	100	Gondola	Company Shops
Western Pacific .....	300	Flat	Company Shops
Unallocated .....	2,050	Hopper	Mount Vernon Car
.....	500	Cov. Hopper	
.....	1,925	Tank & Special Type	
Total .....	18,000		



## Financial

**ATCHISON, TOPEKA & SANTA FE.—Abandonment by the Elkhart & Santa Fe.**—The Elkhart & Santa Fe and the Atchison, Topeka & Santa Fe, respectively have asked the Interstate Commerce Commission for authority to abandon two segments of a line and the operation thereof extending from Boise City, Okla., to Clayton, N. M., 42.4 miles, and from Mt. Dora, N. M., to Farley, 35.6 miles. At the same time this company has sought authority to abandon operation over another segment of the line which is owned by the Colorado & Southern, extending from Clayton, N. M., to Mt. Dora, 17.3 miles.

**ATCHISON, TOPEKA & SANTA FE.—Abandonment by the Cane Belt.**—The Cane Belt and the Gulf, Colorado & Santa Fe, respectively, have asked the Interstate Commerce Commission for authority to abandon a line and the operation thereof extending from Bay City, Tex., to Matagorda, 19.5 miles.

**Abandonment by the Rocky Mountain & Santa Fe.**—The Rocky Mountain & Santa Fe and the Atchison, Topeka & Santa Fe, respectively, have asked the Interstate Commerce Commission for authority to abandon a line and the operation thereof extending from Koehler Junction, N. Mex., to Ute Park, 39.6 miles.

**CENTRAL OF GEORGIA.—Abandonment.**—This company has been denied authority by Division 4 of the Interstate Commerce Commission to abandon a line of railroad extending from Statesboro, Ga., to Metter, 19.5 miles. Division 4 found that the operation of the line during the last five years was conducted at substantial losses, but that the 1941 operating results show "a marked improvement" over the previous year, and "prospects for additional rail traffic are encouraging, particularly in view of the anticipated increase in agricultural production."

"Curtailement in service and the proposed reduction in taxes probably would enable the applicants to meet operating costs," the report of Division 4 added. "In any event, we think that operation for the remainder of the present year should afford shippers in the territory ample opportunity to demonstrate the support of the line that may be expected in the future. If at the end of that period operation continues to be a drain on the carrier's earnings, the applicants may renew their application."

**CENTRAL OF NEW JERSEY.—Tax Payment Decision Reserved.**—The Federal Court at Newark, N. J., on June 8 reserved decision as to the right of the State of New Jersey to refuse a \$12,117,450 tax payment offered by the railroad. This amount represented the unpaid balance of the company's taxes for certain prior years, with interest waived. Court directed trustees of the railroad to appeal the assessment of its property set at \$80,630,054 for the present year, an increase of \$11,441,390 over the 1941 assessment.

**ERIE.—Court Approves Northern Railroad Plan.**—The U. S. District Court at

Newark, N. J., on June 16 approved the reorganization plan of the Northern Railroad of New Jersey. The plan provides for the transfer to the Erie of all Northern New Jersey property. Northern bondholders are to receive Erie preferred stock of equivalent value and Northern stockholders, Erie common stock. The Erie is to pay all taxes and other expenses incurred during the reorganization period.

**NEW YORK CENTRAL.—Equipment Trust Certificates.**—Because of a shortage of equipment due to the war needs, this company has been authorized by Division 4 of the Interstate Commerce Commission in Finance Docket No. 13341 to substitute certain other equipment for 1,928 55-ton steel box cars costing \$5,109,200, and seven Diesel-electric switching locomotives costing \$305,032. The company's application told the commission that arrangements have been made for the construction of "substantial numbers" of freight locomotives, switching locomotives, and gondola cars, and that it believes that certain needed hopper and flat cars may also be obtainable. The company will execute additional trusts as soon as it becomes known what equipment will be available. The company also noted in its application that the production of box cars had been stopped by the War Production Board, while the switching locomotives may be allocated by the Office of Defense Transportation to other carriers if the need for such action should arise.

**NEW YORK, NEW HAVEN & HARTFORD.—Interest Payments.**—The U. S. District Court at New Haven, Conn., on June 5 authorized trustees to pay, on June 15, interest totaling \$13,645,605 on various bond and debenture issues of the railroad and underlying companies.

**PERE MARQUETTE.—Abandonment.**—This company has asked the Interstate Commerce Commission for authority to abandon a line extending from North Greenville, Mich., to Howard City, 17.6 miles.

**ST. LOUIS-SAN FRANCISCO.—Equipment Trust Certificates.**—This company has been authorized by Division 4 of the Interstate Commerce Commission to assume liability for \$2,120,000 of two per cent serial equipment trust certificates maturing in 10 equal annual installments of \$212,000 on July 1 in each of the years from 1943 to 1952, inclusive. The issue has been sold at 99.2599 to Salomon Brothers & Hutzler for the joint account of themselves and Dick & Merle-Smith and Stroud & Co., Inc., making the average annual cost to the company approximately 2.15 per cent.

Due to the present equipment situation, the agreement between the company and the vendors provides that in the event that the railroad is unable to obtain certain equipment it may refund part of the certificates on or before July 2, 1943.

**SOUTHERN PACIFIC.—Abandonment by the Central Pacific.**—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon operation between Lucin, Utah, and Ogden, via Corinne Junction, 146.9 miles. At the same time the Central Pacific, which is now

a part of the Southern Pacific System, has been authorized to abandon that portion of its Promontory branch between Lucin, Utah, and Corinne, 120.8 miles. The Southern Pacific operates over the Central Pacific Promontory branch from Lucin, Utah, to Corinne Junction, where its route then joins the line of the Oregon Short Line (now a part of the Union Pacific) and continues into Ogden. The distance over the Union Pacific is 26.1 miles.

The authority to abandon the operation was granted the Southern Pacific on the condition that the Central Pacific would offer to sell the Dathol-Corinne segment, 4.8 miles, to either the Oregon Short Line or the Union Pacific at its fair net salvage value within 30 days from the date of the commission's certificate.

**UNION PACIFIC.—Abandonment by the St. Joseph & Grand Island.**—The St. Joseph & Grand Island and the Union Pacific, respectively, would be denied authority to abandon a branch line and the operation thereof extending from Stout, Kans., to Highland, 6.8 miles, if Division 4 of the Interstate Commerce Commission adopts a recommended report of its Examiner J. S. Prichard.

"The evidence presented by the applicants," writes the Examiner, "does not support the conclusion that continued operation of the branch would impose an undue burden upon them or upon interstate commerce. On the other hand, the evidence presented by the protestants shows that the tributary territory has sufficient traffic to support rail transportation service; that there is likely to be a substantial increase in the volume of traffic in the future; and that there is sufficient public need for the branch to warrant its retention."

"However, the evidence is that some of the shippers in the tributary territory, especially livestock shippers, have used trucks to a considerable extent in preference to the branch. In this case it would seem proper to remind the shippers that the branch cannot exist indefinitely without sufficient traffic to support it and that continued operation is entirely dependent upon the use made of it by those whom it was designed to serve. The finding of Division 4 should be without prejudice to the removal of the application herein, at the expiration of a period of two years from the date thereof, if it can be shown that the volume of traffic on the branch is insufficient to warrant further operation."

### Average Prices of Stocks and Bonds

	June 16	Last week	Last year
Average price of 20 representative railway stocks..	24.25	24.44	28.87
Average price of 20 representative railway bonds..	63.48	64.72	64.55

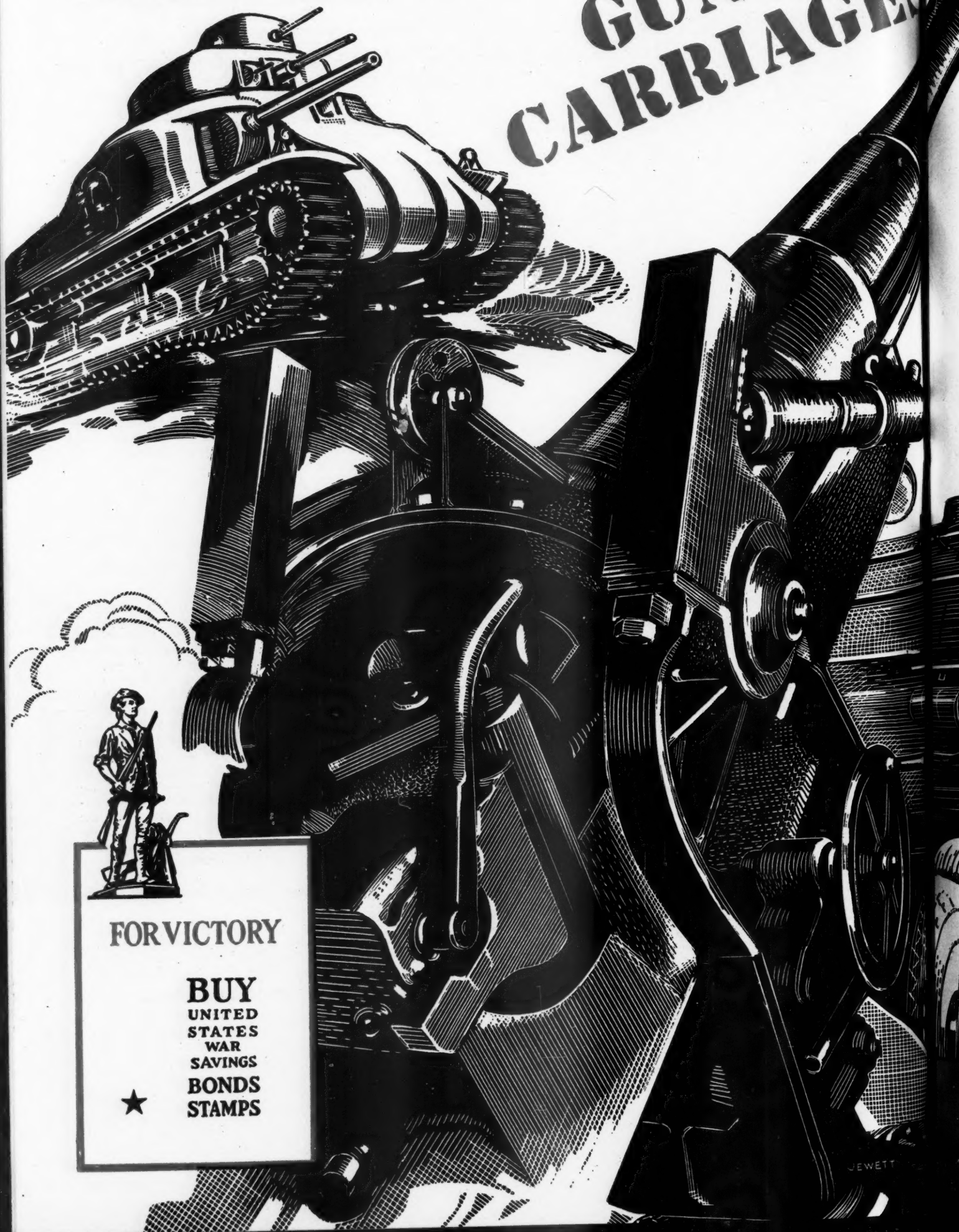
### Dividends Declared

Albany & Susquehanna.—\$4.50, quarterly, payable July 1 to holders of record June 20.  
 Carolina, Clinchfield & Ohio.—\$1.25, quarterly, payable July 20 to holders of record July 10.  
 Joliet & Chicago.—Stamped, \$1.75, quarterly, payable July 6 to holders of record June 23.  
 Mahoning Coal Railroad.—Common, \$7.50; 5 Per Cent Preferred, \$1.25, semi-annually, both payable June 1 to holders of record June 22.  
 Providence & Worcester.—\$2.50, payable July 1 to holders of record June 10.  
 Wheeling & Lake Erie.—\$1.00, payable July 1 to holders of record June 23.

Continued on second left-hand page

# TANKS

# GUN CARRIAGES



FOR VICTORY

**BUY**  
UNITED  
STATES  
WAR  
SAVINGS  
BONDS  
STAMPS





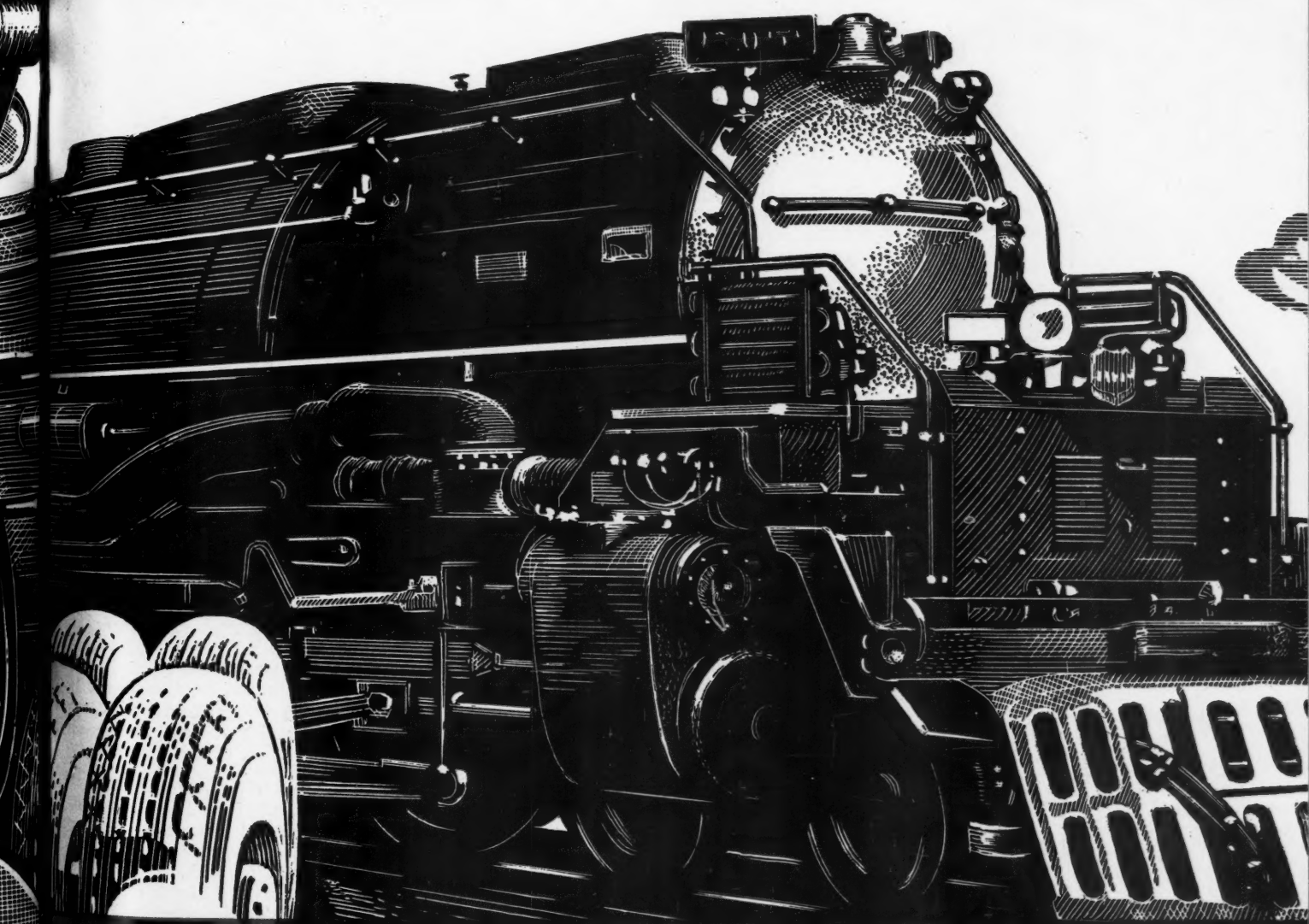
# LOCOMOTIVES

It was not a matter of "conversion" when Alco went to work on tanks and gun carriages. Locomotives still must be built. Locomotives are, in fact, one of the most vital items in the entire war effort.

Raw materials must be shipped to manufacturers in all parts of the country. Sub-contractors' products must go to the prime contractors. Finished matériel must be delivered to ports of embarkation. And in many cases, another rail haul carries our tanks, guns, ammunition, food and men to the fighting areas.

Alco locomotives are being delivered in a minimum of time for this vital transportation because 100 years experience has developed a vast wealth of engineering know-how and a wide range of modern locomotive designs with the necessary tools and jigs.

Alco builds tanks, gun carriages and other ordnance, and the locomotives to haul them to the fighting fronts.



## AMERICAN LOCOMOTIVE

Manufacturers of Mobile Power

Steam, Diesel and Electric Locomotives, Marine Diesels, Tanks, Gun Carriages and other Ordnance

## Railway Officers

### EXECUTIVE

**W. G. Jones**, assistant to the receivers of the Seaboard Air Line, with headquarters at Norfolk, Va., has been appointed executive assistant to the receivers. **Douglas Leard**, assistant to general manager at Norfolk, has been appointed assistant to the receivers.

The jurisdiction of **William F. Schaff**, vice-president of the New York Central system, with headquarters at Chicago, has been extended to include the territory heretofore under the jurisdiction of **Charles Sterling Millard**, vice-president and general manager at Cincinnati, Ohio, whose death on June 5 was reported in the *Railway Age* of June 13.

**Leroy C. Ioas**, whose promotion to assistant to the vice-president in charge of system passenger traffic of the Southern



Leroy C. Ioas

Pacific, with headquarters at San Francisco, Cal., was reported in the *Railway Age* of May 30, was born at Bloomington, Ill., on February 15, 1896, and entered railway service on May 15, 1912, as a stenographer in the office of the treasurer of the Chicago, Indianapolis & Louisville (Monon), later serving as file clerk and stenographer and secretary to the president. On September 23, 1919, Mr. Ioas went with the Southern Pacific as secretary to the vice-president and in 1923 he was appointed traveling passenger agent, later serving successively as inspector of train service, chief clerk of the train service department and supervisor of train service until his recent promotion, effective June 1.

### OPERATING

**M. G. Monaghan** has been appointed trainmaster on the Ft. Worth & Denver City at Amarillo, Tex., a newly created position.

**J. C. Wroton**, general superintendent transportation of the Seaboard Air Line,

with headquarters at Norfolk, Va., has been promoted to general manager, succeeding **H. A. Benton**, who has been appointed executive general agent.

**W. J. Hogan**, general superintendent of the Grand Trunk Western, has been promoted to general manager, with headquarters as before at Detroit, Mich., succeeding **J. A. Clancey**, whose death on June 4 was reported in the *Railway Age* of June 13.

**H. C. Remington**, car accountant of the Texas & Pacific, has been promoted to superintendent of transportation, with headquarters as before at Dallas, Tex., succeeding **W. T. Long, Jr.**, who has been granted a leave of absence to serve as deputy associate director for the Office of Defense Transportation.

**A. Shea** has been appointed assistant superintendent of the Canadian National, with headquarters at Montreal, Que., having jurisdiction over the St. Hyacinthe, St. Jutes, Rouses Point, Massena, Beauharnois, Hemmingford, Lemoyne and Granby subdivisions, succeeding **E. H. Locke**, who has been transferred to the Cornwall subdivision, with the same headquarters, succeeding **R. A. McQuade**, transferred.

**J. F. Cooper**, roadmaster on the Canadian National at Brandon, Man., has been promoted to assistant superintendent, with the same headquarters, succeeding **J. C. Crombie**, who has been transferred to Winnipeg, Man. Mr. Crombie relieves **R. H. Robertson**, who has been transferred to Ft. Rouge, Man., replacing **Fred J. Myers**, whose promotion to superintendent at Dauphin, Man., was reported in the *Railway Age* of June 6.

**D. R. Waite** has been appointed superintendent of the Spokane International, with headquarters at Spokane, Wash., succeeding **J. E. Hanifen**, who has retired. Mr. Hanifen entered railway service in 1887 and went with the Spokane Falls & Northern (now part of the Great Northern) in 1893. On May 1, 1905, he was appointed assistant superintendent of con-

struction on the Spokane International and on November 1, 1916, he was promoted to superintendent, which position he held until his retirement.

**W. J. Hotrum**, superintendent of terminals of the Canadian National, with headquarters at Black Rock, N. Y., has been appointed superintendent of the Capreol division, with headquarters at Capreol, Ont., succeeding **A. J. Lomas**, who has been appointed superintendent of the Toronto terminals at Toronto, Ont. Mr. Lomas succeeds **W. J. Yearsley**, who has retired on pension. **Grant Gordon** has been appointed assistant superintendent at Toronto, succeeding **J. B. Currah**, who has been promoted to superintendent of terminals at Black Rock, N. Y., to succeed Mr. Hotrum.

**Henry M. Shapleigh**, whose promotion to superintendent of the Klamath division of the Great Northern, with headquarters at Klamath Falls, Ore., was reported in the *Railway Age* of June 6, was born at Moorehead, Minn., on February 17, 1902, and attended the University of Minnesota from October, 1920, to December, 1922. On De-



Henry M. Shapleigh

cember 10, 1922, he entered railway service as a chainman in the engineering department of the Central district, later being promoted to rodman. On October 1, 1924, he was appointed assistant to the roadmaster at Whitefish, Mont., later being transferred to Everett, Wash., and on July 1, 1926, he was advanced to district roadmaster on the Butte division at Great Falls, Mont. Mr. Shapleigh was appointed trainmaster at Great Falls on April 16, 1929, and on August 20, 1931, he was reappointed district roadmaster at that point. On August 1, 1934, he was again appointed trainmaster at Great Falls, which position he held until his recent promotion, effective June 1.

**M. M. Cronk**, whose promotion to general superintendent of the Pere Marquette, with headquarters at Detroit, Mich., was reported in the *Railway Age* of June 6, was born at Howard City, Mich., on November 4, 1894, and attended business college in 1913. He entered railway service in 1911 as a telegrapher for the Grand Rapids & Indiana (now part of the Pennsylvania) at Howard City, Mich., while still attending high school. From 1912 to 1915 he served

### Notice to Those Whose Careers Are Summarized in Who's Who in Railroading

Some of our friends among railroad men and those of affiliated interests, whose careers are outlined in "Who's Who in Railroading" (biographical volume issued by the Simmons-Boardman Publishing Corporation, publishers of *Railway Age*), have informed us that they have been circularized by a clipping bureau in New York, offering them a copy of what "Who's Who in Railroading" reports of their careers, at a price of \$1.

This clipping bureau is in no way connected with the Simmons-Boardman Publishing Corporation. We make this statement because we have received a number of communications from our friends inquiring about the solicitation.



as a telegrapher on the Chicago, Burlington & Quincy, the Union Pacific, the Canadian Pacific and the Michigan Central. Mr. Cronk went with the Pere Marquette as a telegrapher in the spring of 1915 and in the summer of 1916 he was advanced to car distributor at Grand Rapids, Mich. In the fall of 1917 he was promoted to trainmaster of the Chicago terminal and on May 1, 1923, he was advanced to assistant superintendent of the Chicago-Petosky division, with headquarters at Grand Rapids. On January 1, 1941, Mr. Cronk was promoted to superintendent of that division, with the same headquarters, the position he held until his recent promotion, effective June 1.

**H. P. Hannan**, whose promotion to superintendent of freight transportation of the Chicago district of the New York Central, with jurisdiction also over the Indiana Harbor Belt, the Chicago Junction Railway, the Chicago River & Indiana and the transportation bureau in the La-Salle Street station in Chicago, was reported in the *Railway Age* of June 6, was born at Indianapolis, Ind., on October 11, 1896, and entered railway service in February, 1916, as a clerk in the demurrage department of the Cleveland, Cincinnati, Chicago & St. Louis (Big Four). Later



H. P. Hannan

he became traveling demurrage supervisor and traveling car agent and in March, 1923, he was transferred to the office of the transportation assistant to the president of the New York Central system in New York, which office later became the office of the manager of freight transportation, where he held the positions of traveling car agent, demurrage supervisor, supervisor of car service, and supervisor of car service and demurrage, holding the latter position at the time of his recent promotion, effective June 1.

**Frederic R. Bartles**, assistant general manager of the Lines west of Livingston, Mont., of the Northern Pacific, has been promoted to general manager of the Lines west, with headquarters as before at Seattle, Wash., succeeding **William Calmell Sloan**, whose death on June 6 was reported in the *Railway Age* of June 13. **J. F. Alsip**, superintendent of the Tacoma division, with headquarters at Tacoma, Wash., has been advanced to assistant general manager, Lines west, relieving Mr. Bartles,

and **C. H. Burgess**, assistant superintendent at Tacoma, has been promoted to superintendent of the Tacoma division, replacing Mr. Alsip.

**Charles L. Franklin**, division superintendent on the Chicago, Rock Island & Pacific, with headquarters at Rock Island, Ill., has been promoted to assistant to the chief operating officer, a newly created



Charles L. Franklin

position, with headquarters at Chicago. **B. F. Wells**, special transportation representative, has been advanced to superintendent at Rock Island, succeeding Mr. Franklin.

Mr. Franklin was born at Alpena, Mich., on March 7, 1889, and attended business college at Ottawa, Ont., in 1905 and 1906. He entered railway service in 1908 as a brakeman on the Grand Trunk Pacific at Melville, Sask., and in 1911 he was promoted to conductor. He resigned in March, 1912, and the following month entered the service of the Union Pacific as a brakeman at Grand Island, Neb., later becoming a switchman and an engine foreman. In November, 1916, he went with the Chicago, Burlington & Quincy as a switchman at Ravenna, Neb., and in 1917 he was ad-



B. F. Wells

vanced to yardmaster at Edgemont, S. D. He resigned from the service of the Burlington in 1923, and the following year went with the Colorado & Southern as a switchman at Denver, Colo. In 1925, he returned to the Burlington as a switchman at Denver, and in 1926 he was again

promoted to yardmaster on the Burlington, this time at Centralia, Ill. He was advanced to trainmaster, with headquarters at Centralia in 1932, and in April, 1937, he went with the Rock Island as trainmaster with headquarters at Cedar Rapids, Iowa. Mr. Franklin was transferred to El Reno, Okla., in October, 1937, and in November, 1938, he was promoted to superintendent of the Chicago Terminal division, with headquarters at Chicago. In June, 1939, he was transferred to Rock Island, where he remained until his recent promotion, effective June 10.

Mr. Wells was born at Bascom, Ky., on January 15, 1903, and attended business college for 1½ years. He entered railway service on the Union Pacific on June 1, 1922, serving in various positions until February 1, 1937, when he was promoted to assistant superintendent of the Los Angeles division, with headquarters at Los Angeles, Cal. On October 1, 1938, he was transferred to the Wyoming division at Green River, Wyo., and on January 1, 1941, he was advanced to superintendent of the Nebraska division, with headquarters at Omaha, Neb. Mr. Wells was promoted to general superintendent of the Eastern district, with headquarters at Cheyenne, Wyo., on September 25, 1941, and on December 1, 1941, he was appointed dispatcher at Grand Island, Neb. In February, 1942, Mr. Wells went with the Rock Island as special transportation representative, which position he held until his recent promotion.

## TRAFFIC

**J. O. Adams** has been appointed assistant general freight agent of the Atlantic Coast Line, with headquarters at Orlando, Fla. **G. S. Jenkins** has been appointed general agent at West Palm Beach, Fla.

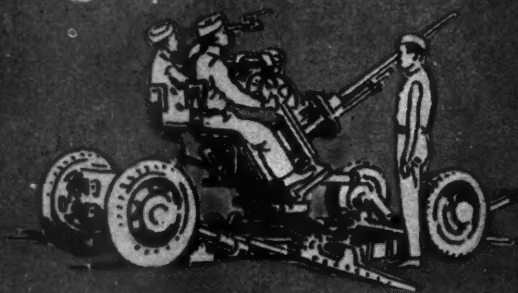
**Malcolm J. Woods**, **William H. Happ** and **William E. Rudolph**, district passenger agents of the Canadian National, with headquarters at Philadelphia, Pa., Kansas City, Mo., and St. Louis, Mo., respectively, have been appointed general agents, passenger department, with the same headquarters.

**B. B. Lacey**, traveling freight agent on the Southern Pacific Lines in Texas and Louisiana at Corpus Christi, Tex., has been promoted to district freight and passenger agent at that point, succeeding **S. B. Chambers**, who has been transferred to Harlingen, Tex. Mr. Chambers replaces **Wills J. Carter**, who has been appointed district freight agent at San Antonio, Tex., relieving **H. A. Loeffler**, who retired on June 1 after 55 years' service.

**W. J. Hock**, assistant general freight agent of the Seaboard Air Line, with headquarters at Tampa, Fla., has been promoted to assistant to chief freight traffic officer, with headquarters at Norfolk, Va., succeeding **F. C. Cheney**, who has been appointed vice-president of the Macon, Dublin & Savannah, with headquarters at Macon, Ga., having jurisdiction over all departments. **W. E. Rachels**, express traffic manager of the Seaboard Air Line at Norfolk, has been appointed assistant general freight agent at Tampa, succeeding

Continued on second left-hand page

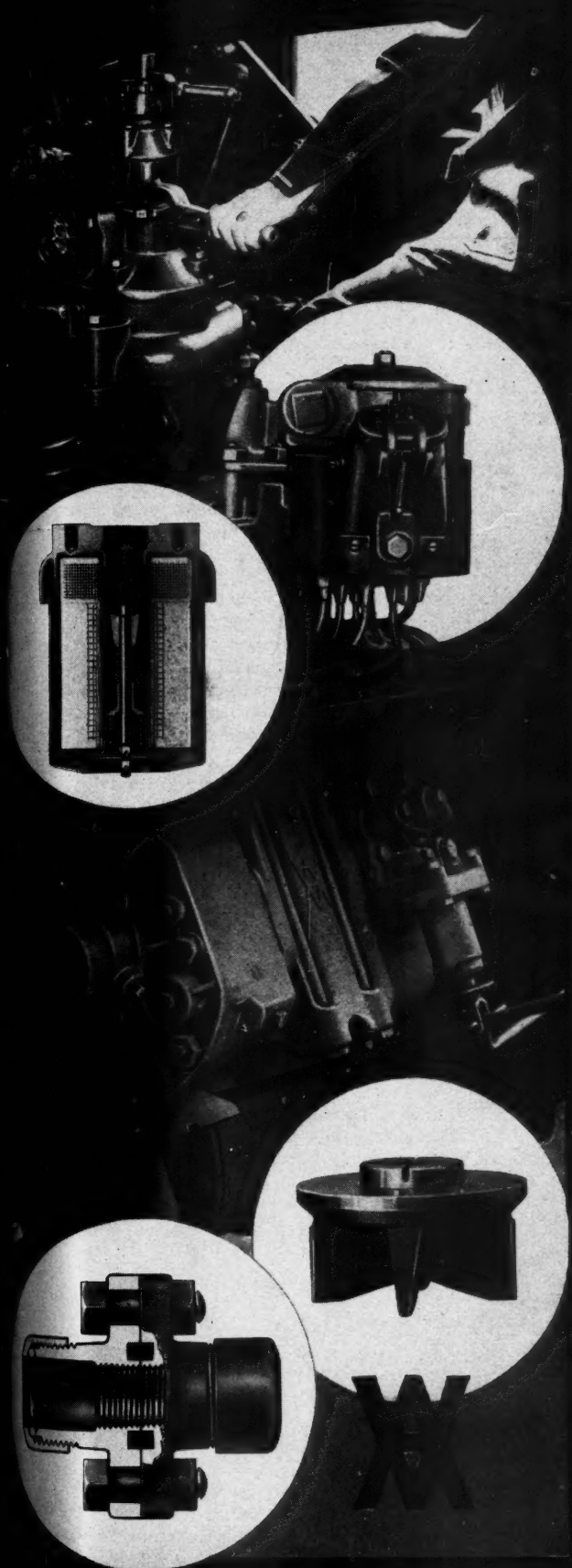
## The ROLE of



The brass and bronze we are now saving by our conservation program releases enough material to equip the carriage of thirty 37-mm antiaircraft guns every month, with enough brass remaining to make cartridge cases for 800 rounds of ammunition for each gun. Monthly savings of rubber is sufficient to make several hundred tires used on these guns, together with rain coats and gas masks for the crews.

# WESTINGHOUSE AIR E





XX  
BRAKE COMPANY . . .

Mr. Hock. **L. E. Morgan**, commercial agent at Plant City, Fla., has been appointed district freight agent, with the same headquarters. The position of commercial agent at Plant City, formerly held by Mr. Morgan, has been abolished. **G. R. Ward, Jr.**, has been appointed express traffic manager at Norfolk, succeeding Mr. Rachels.

**Oscar L. Grisamore**, assistant general freight agent for the Illinois Central at Washington, D. C., has been promoted to general freight agent, with the same headquarters. **Austin E. Regan**, office manager for the general freight agent at Chicago, has been promoted to assistant general freight agent at Chicago, succeeding **C. A. Sublett**, who has been appointed office manager to the vice-president in charge of traffic, relieving **N. L. Richmond**, whose promotion to coal traffic manager, was reported in the *Railway Age* of May 16.

**Otto Kopp**, whose promotion to general freight agent on the Northern Pacific with headquarters at Seattle, Wash., was reported in the *Railway Age* of May 30, was born in Chicago on February 4, 1897, and entered railway service in 1911 as a messenger boy on the Chicago, Rock Island & Pacific, later serving successively as helper, clerk and operator on that road and agent-operator on the Minneapolis, St. Paul & Sault Ste. Marie. In 1915 he went



Otto Kopp

with the traffic department of the Marshall Wells Company, Duluth, Minn., and returned to railroad service the following year as an agent-operator on the Great Northern. In 1918 and 1919 he served with the U. S. Army, then returning to the Great Northern, and in 1923 he went with the Northern Pacific as a clerk in the freight traffic department, later being advanced successively to city freight agent and traveling freight agent at Moorehead, Minn. On April 1, 1939, Mr. Kopp was promoted to assistant general freight agent, with headquarters at St. Paul, Minn., and in May, 1939, he was transferred to Duluth, where he remained until his recent promotion.

#### ENGINEERING & SIGNALING

**S. T. Robertson**, roadmaster on the Chicago, Rock Island & Pacific at Little

Rock, Ark., has been promoted to engineer-roadmaster of the Burlington-Rock Island, with headquarters at Houston, Tex., succeeding **W. A. Gunderson**, assigned to special work.

**L. D. Dickinson**, office engineer in the signaling department of the Union Pacific at Omaha, Neb., has been promoted to assistant general signal engineer, with the same headquarters. Mr. Dickinson will have general charge of the signal department during the absence of **F. W. Pfleging**, general signal engineer, who has been granted a leave of absence because of illness.

#### MECHANICAL

**C. J. Oldenbittel** has been appointed chief mechanical accountant of the Atlantic Coast Line, with headquarters at Wilmington, N. C.

**Tracy Clark Baldwin**, whose retirement on May 31 as superintendent of motive power of the New York, Chicago & St. Louis (Nickel Plate), with headquarters at Cleveland, Ohio, was reported in the *Railway Age* of June 13, was born at East Springfield, Pa., on June 15, 1875, and entered railway service in June, 1889, as a messenger and tool room boy for the Nickel Plate at Conneaut, Ohio. He later served as machinist apprentice, machinist and toolmaker, and machine shop foreman at that point. In May, 1905, he was appointed roundhouse foreman at Buffalo, N. Y., and five years later, he was advanced to general machine shop foreman at Conneaut. Mr. Baldwin was promoted to master mechanic of the Buffalo and Cleveland divisions, with the same headquarters in April, 1915, and in November, 1916, he was advanced to superintendent of shops at Conneaut. In February, 1923, he was appointed master mechanic of the Chicago and Ft. Wayne divisions at Stony Island, Ill., and on June 10, 1929, he was transferred to the Nickel Plate district, with headquarters at Conneaut. Mr. Baldwin was promoted to superintendent of motive power, with headquarters at Cleveland, Ohio, on December 1, 1937, which position he held until his retirement.

**T. C. Shortt**, whose promotion to superintendent of motive power of the New York, Chicago & St. Louis (Nickel Plate), with headquarters at Cleveland, Ohio, was reported in the *Railway Age* of June 13, was born at Crewe, Va., on December 9, 1881, and entered railway service as an apprentice on the Norfolk & Western at Crewe. From 1911 to 1914, he served as a machinist on the Atlantic Coast Line, the Norfolk & Southern and the Norfolk & Western. In 1914 he went with the Seaboard Air Line as a roundhouse foreman and in November, 1915, he returned to the Norfolk & Western as machinist and assistant foreman at Petersburg, Va. Mr. Shortt was promoted to roundhouse foreman at Portsmouth, Ohio, in 1920, and in November, 1923, he went with the Chesapeake & Ohio as machinist at Peach Creek, W. Va., later being advanced to foreman. He was transferred to Huntington, W. Va., in

February, 1924, and appointed erecting shop foreman at Russell, Ky., on December 28, 1924. On June 1, 1930, he was appointed chief inspector at Lima, Ohio, and six months later he returned to Russell as erecting shop foreman. Mr. Shortt was appointed supervisor of reclamation, with headquarters at Huntington, on October 1, 1931, and a year later, he was appointed equipment inspector at Cleveland, Ohio. On July 16, 1933, he went with the Nickel Plate as assistant to the superintendent of motive power, with headquarters at Cleveland, and on December 1, 1937, he was appointed master mechanic of the Nickel Plate district, with headquarters at Conneaut, Ohio, which position he held until his recent promotion, effective June 1.

#### PURCHASES AND STORES

**William S. Riach**, assistant general purchasing agent of the Atchison, Topeka & Santa Fe at Chicago, has been appointed acting general purchasing agent with the same headquarters for the duration, succeeding **Warren W. Kelly**, who, as reported elsewhere in this issue, has been appointed associate director of the Section of Materials and Equipment of the Office of Defense Transportation at Washington. **Franklin J. Steinberger**, assistant general storekeeper at Topeka, has been appointed assistant to the general purchasing agent at Chicago and has been succeeded by **A. B. Sears**, general foreman of the stores department at Topeka.

#### SPECIAL

**Dr. Bradley L. Coley**, chief surgeon of the New York Central System at New York, has entered the United States Army at lieutenant-colonel. During Mr. Coley's absence his duties will be assumed by **Dr. Carl G. Burdick**, as acting chief surgeon at New York.

#### OBITUARY

**H. M. Terrell**, division superintendent of the Seaboard Air Line, with headquarters at Raleigh, N. C., was found dead in the Raleigh yard on June 14, apparently the result of gunshot wounds. Mr. Terrell was born on June 15, 1886, at Asheville, N. C., and entered railroad service on February 1, 1901, as operator with the Seaboard Air Line at Warren Plains, N. C., serving in this capacity at Norlina, N. C., and Richmond, Va. In October, 1907, he became agent at Norlina. Mr. Terrell served as president of the Terrell-Knott Company at Townsville, N. C., from January 1, 1917, to January 1, 1918, when he became traffic manager of the Georgia Land & Livestock Co. at Savannah, Ga. In November, 1918, he returned to the Seaboard Air Line as operator, becoming general yardmaster at Norlina in October, 1920, and assistant trainmaster there in October, 1923. Mr. Terrell was promoted to trainmaster at Raleigh, in October, 1925, which position he held until November, 1935, when he was promoted to division superintendent at Raleigh, the position he held until his death.

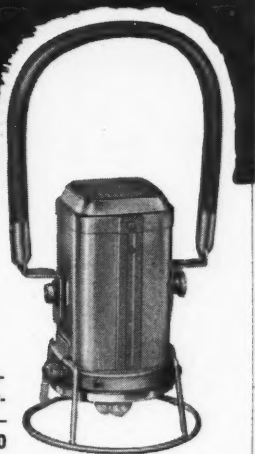


# LIGHT

YOU CAN DEPEND UPON

## JUSTRITE Twin-Bulb TRAINMEN'S LANTERN

FIRST choice with thousands of trainmen. Powerful 662 candle power forward beam cuts thru fog and smoke—gives distinct signal full length of 110 car train. Light to sides at the same time. Twin bulbs for safety—flip the switch and second bulb lights instantly. Space in lid for two spare bulbs. Designed for easy replacement of any part.



All Justrite Safety Products are sturdily built of finest materials for years of trouble-free service.

### JUSTRITE SAFETY FILLING CAN OILY WASTE CAN



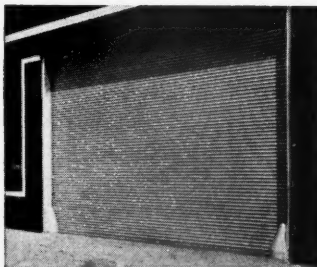
Safety Filling Cans (left) for handling explosive and flammable liquids that must be poured into fuel tanks etc. Oily Waste Cans (right) reduce danger of fire from oily waste and rags.



Write for catalogs of Justrite Safety Products

**JUSTRITE MANUFACTURING CO.**  
2086 N. SOUTHPORT AVE., CHICAGO, ILL.

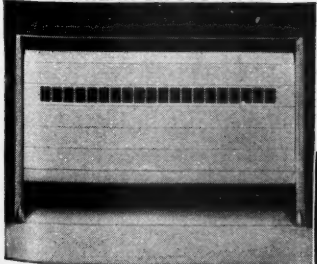
## DOORS FOR TODAY'S BUILDINGS



KINNEAR ROLLING DOOR



KINNEAR BIFOLD DOOR



KINNEAR RoL-TOP DOOR

To get the fullest measure of door convenience and efficiency needed for today's — and tomorrow's — faster commercial and industrial pace, install Kinnear Doors. Their smooth, easy upward action saves floor and wall space . . . keeps the doors out of the way, out of reach of damage when open . . . is the most efficient type

IT PAYS TO CALL ON  
DOOR SPECIALISTS —  
CONSULT KINNEAR!

of door for motor operation . . . protection against theft, windstorms and accidental damage. Kinnear all-metal doors give extra protection against fire, riot and sabotage.

Kinnear Doors are built to fit any opening. Write for complete data today. The Kinnear Manufacturing Co., 2020-40 Fields Ave., Columbus, Ohio.

SAVING WAYS IN DOORWAYS

**KINNEAR**  
ROLLING DOORS

### SWING BOOM TRACTOR CRANE

2½, 5, or 10 Ton Capacities  
11 Ft. to 31 Ft. Booms—Solid or Pneumatic Tires



## NON-STOP PERFORMANCE FOR SPEEDUP

KRANE KAR will do it . . . 168 hours a week—24 hours a day, 7 days a week. No stopping for replacement or recharging . . . continuous, safer, faster performance. Send for Bulletin 55, with illustrations and specifications. Agents in all of the principal cities.

Recent Purchasers: Chicago, Burlington & Quincy; Canadian Pacific; Pennsylvania; Atchison, Topeka & Santa Fe; Great Northern; Grand Trunk Western; etc.

**Krane kar**  
FOR RAILROADS

SILENT HOIST WINCH & CRANE CO., 847 63RD ST., BROOKLYN, N.Y.

# Index to Advertisers

June 20, 1942

A		K	
Air Reduction Sales Company	18	Kerite Insulated Wire & Cable Co., Inc., The	67
Aluminum Company of America	27	Kinnear Manufacturing Co., The	67
American Arch Company, Inc.	53		
American Creosoting Company, Inc.	33		
American Cyanamid Company	39		
American Locomotive Company	54a, 54b		
American Optical Co.	26		
American Railway Products Co.	65		
American Steel Foundries	23		
Ashton Valve Company, The	58		
Association of American Railroads	28		
B		L	
Baldwin Locomotive Works, The	44	Lamson and Sessions Company, The	31
Barco Manufacturing Company	36	Lima Locomotive Works, Inc.	51
Bethlehem Steel Company	3		
Buckeye Steel Castings Co., The	64		
Bullard Company, The	41		
C		N	
Canadian Cardwell Co., Ltd.	17	National Aluminate Corporation	46
Cardwell Westinghouse Co.	17	National Bearing Metals Corporation	35
Carnegie-Illinois Steel Corporation	8, 9	National Malleable and Steel Castings Co.	15
Chicago Railway Equipment Co.	29	New York Air Brake Company, The	63
Classified Advertisements	66		
Colonial Creosoting Company, Inc.	33		
Columbia Steel Company	8, 9		
Crane Co.	62		
D		O	
Dearborn Chemical Company	5, 65	Ohio Locomotive Crane Co., The	66
Dulien Steel Products, Inc.	66	Okonite Company, The	50
E		Oxweld Railroad Service Company, The	2
Edgewater Steel Company	6, 7		
Electro-Chemical Engineering Corp.	65		
Electro-Motive Division, General Motors Corporation	Front Cover		
Ex-Cell-O Corporation	64		
F		P	
Flannery Bolt Company	56, 57	Peerless Equipment Co.	24, 25
Franklin Railway Supply Co., Inc.	52	Pittsburgh Spring & Steel Co.	66
G		Pullman Standard Car Mfg. Co.	43
General Railway Signal Company	Back Cover		
General Steel Castings Corporation	20, 21		
Georgia Creosoting Company, Inc.	33		
Get Together Department	66		
Glidden Company, The	22		
Gold Car Heating & Lighting Co.	66		
H		R	
Harbison-Walker Refractories Co.	53	Rail & Industrial Equipment Co.	66
Hennessy Lubricator Company	60	Railway Educational Bureau, The	66
Holland Company	4	Railway Steel Spring Division of the American Locomotive Company	59
Hunt Company, Robert W.	66	Republic Steel Corporation	45
Hunt-Spiller Mfg. Corporation	55	Ryerson & Son, Inc., Joseph T.	72
Hyman-Michaels Company	66		
I		S	
Iron & Steel Products, Inc.	66	Safety Car Heating and Lighting Company, Inc., The	14
J		Schaefer Equipment Company	32
Johns-Manville Corp.	16	Scully Steel Products Company	8, 9
Justrite Manufacturing Co.	67	Sellers & Co., Inc., William	34
		Silent Hoist Winch & Crane Co.	67
		Simmons-Boardman Publishing Corp.	30, 66
		Sonken-Galamba Corp.	66
		Sperry Rail Service	37
		Standard Car Truck Co.	38
		Standard Steel Works Division of The Baldwin Locomotive Works	40
		Standard Stoker Company, Inc., The	19
		Stucki Co., A.	66
		Superheater Co., The	54
		Symington-Gould Corporation, The	73
		T	
		Tennessee, Coal, Iron and Railroad Company	8, 9
		U	
		Union Asbestos & Rubber Co.	42
		Union Carbide and Carbon Corporation	2
		Union Switch & Signal Company	48
		United States Steel Corporation	8, 9
		United States Steel Export Co.	8, 9
		V	
		Vanadium Corporation of America	12, 13
		W	
		Waugh Equipment Company	61
		Westinghouse Air Brake Co.	54c, 54d
		Westinghouse Electric & Mfg. Co.	10, 11

## RYERSON

### CERTIFIED

## STEELS

● You get uniform, high quality *Certified Steel* when you draw on the large and complete stocks of the nearby Ryerson plant. Prompt shipment assured. Write for Stock List. Joseph T. Ryerson & Son, Inc., Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

## Are Safer..yet COST NO MORE!

Principal Products Include:

Structurals  
Lewis Iron  
Plates

Sheets  
Strip  
Alloys

Cold Finished Steel  
Tool Steel  
Stainless

Mechanical Tubing  
Boiler Tubes  
Welding Rod

Babbitt Solder  
Reinforcing  
Nails, Rivets, etc.

